REMTECH inc.

Huntsville, Alabama

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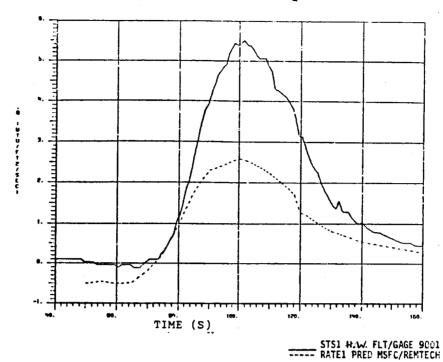
VOLUME II

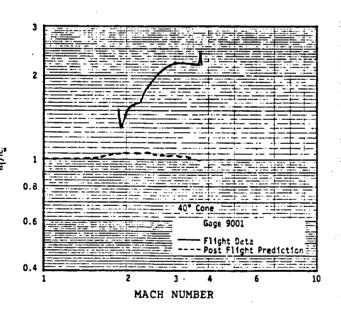
APPENDIX A AEROTHERMAL COMPARISONS

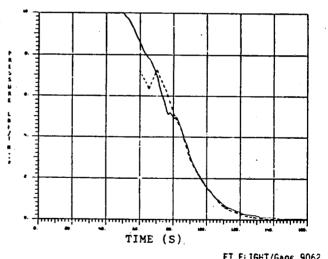
APPENDIX B FLIGHT-DERIVED  $h_i/h_u$  vs.  $M_{\infty}$  PLOTS

# APPENDIX A AEROTHERMAL COMPARISONS







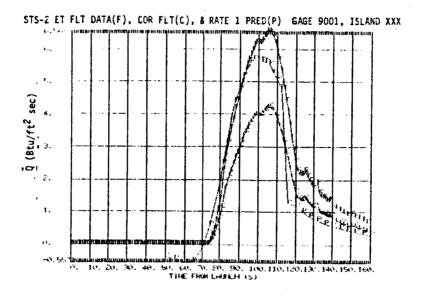


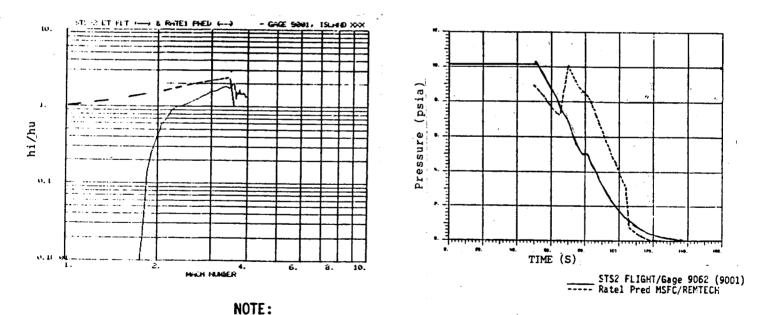
ET FLIGHT/Gage 9062
RATE1 PRED MSFC/REMTECH

#### NOTE:

Fig. A.la Aerothermal Analysis for Gáge 9001 in STS-1

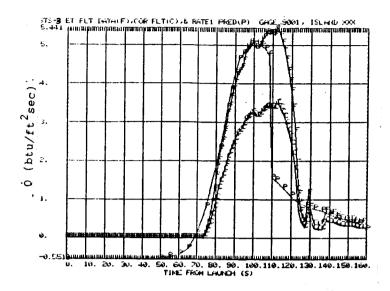
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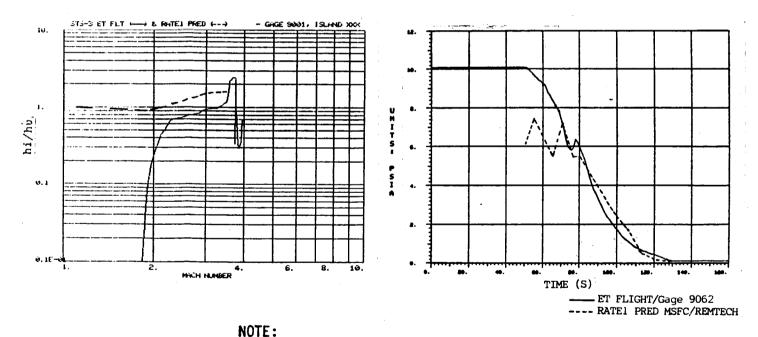




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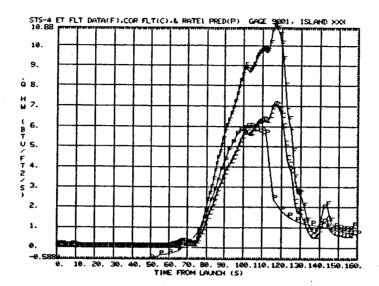
Fig. A.1b Aerothermal Analysis for Gage 9001 in STS-2

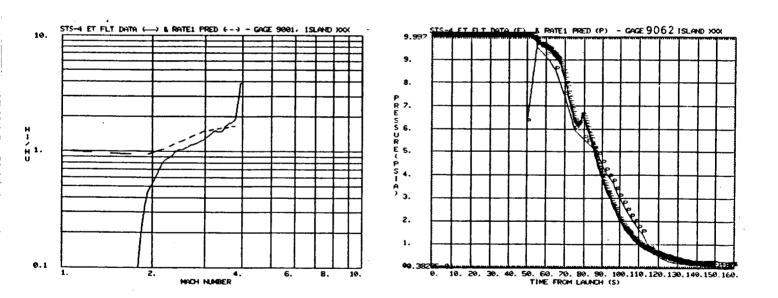




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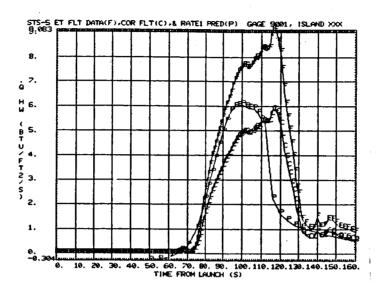
Fig. A.1c Aerothermal Analysis for Gage 9001 in STS-3

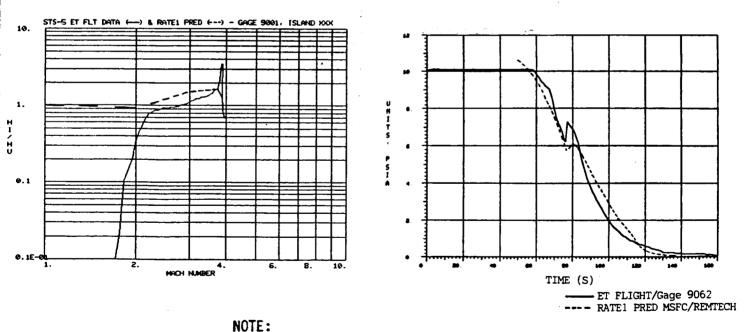




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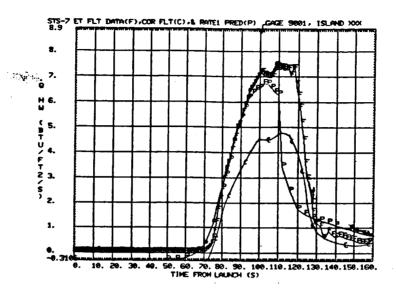
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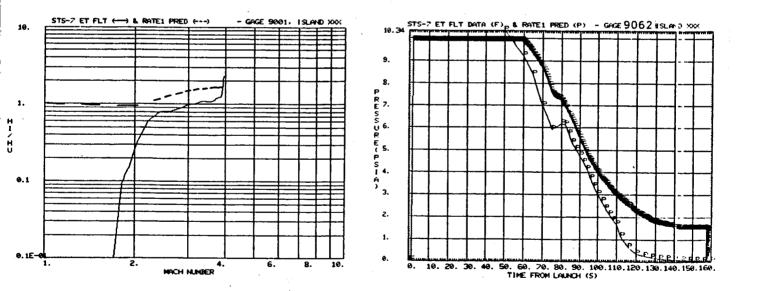




Thermal Mismatch was Considered

Fig. A.le Aerothermal Analysis for Gage 9001 in STS-5



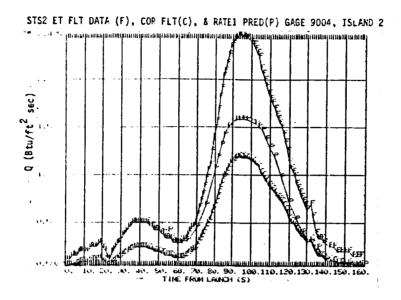


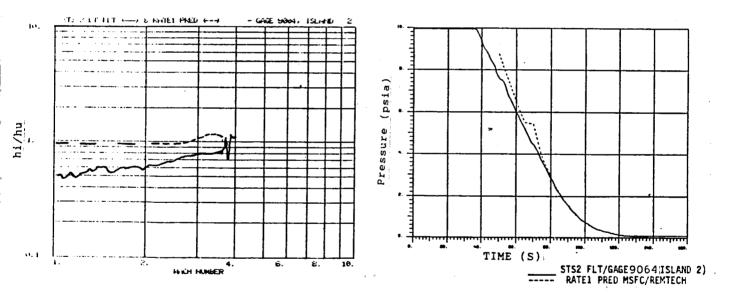
#### NOTE:

- Thermal Mismatch was Considered
- Bad Pressure Measurements

Fig. A.lf Aerothermal Analysis for Gage 9001 in STS-7

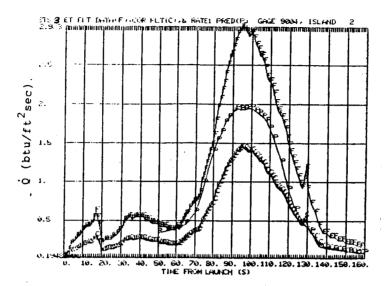
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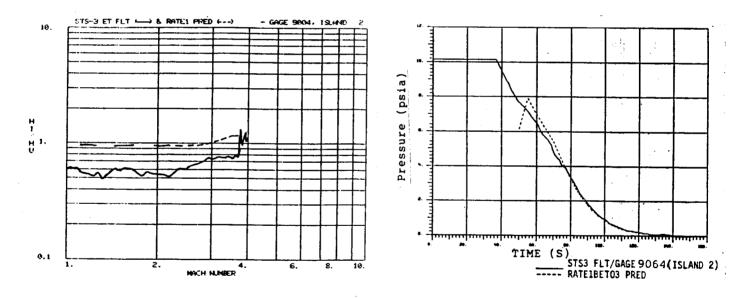




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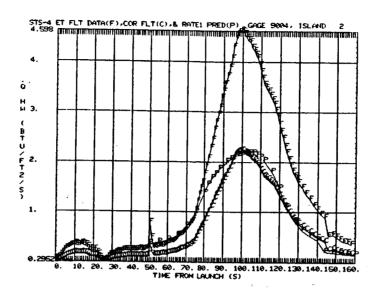
Fig. A.2a Aerothermal Analysis for Gage 9004 in STS-2

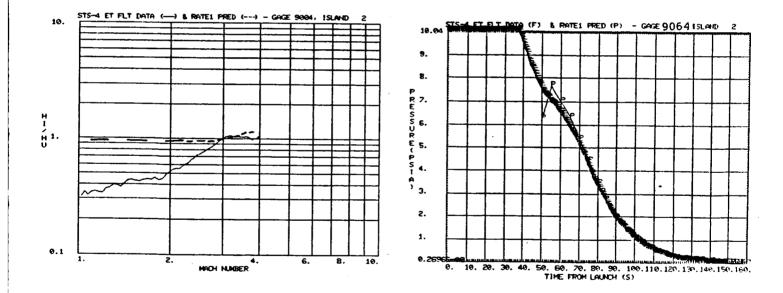




NOTE:
• Thermal Mismatch was Considered

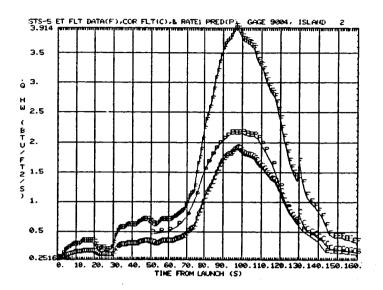
Fig. A.2b Aerothermal Analysis for Gage 9004 in STS-3

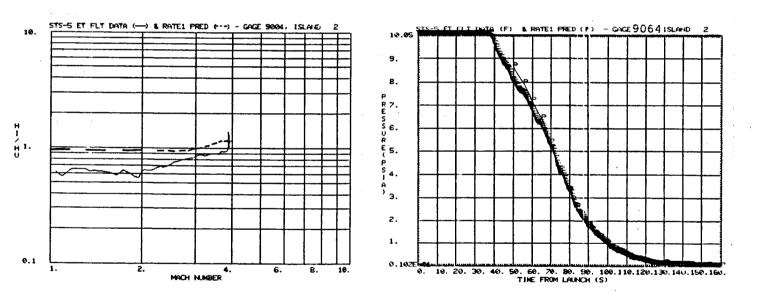




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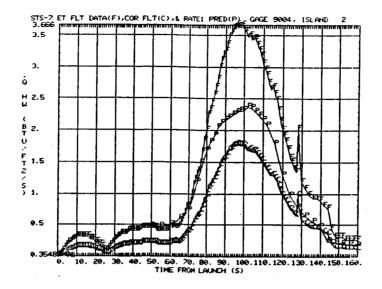
Fig. A.2c Aerothermal Analysis for Gage 9004 in STS-4

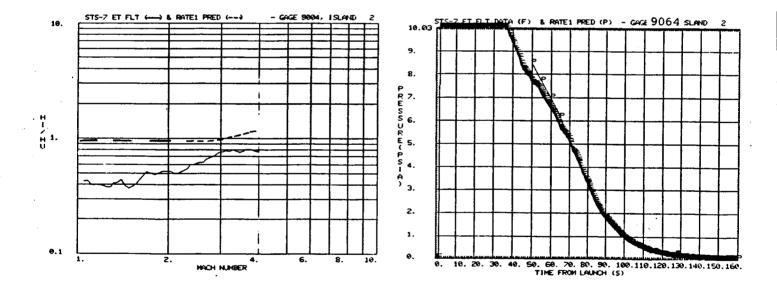




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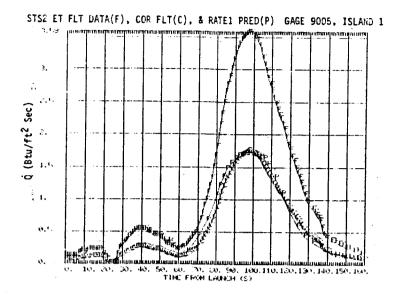
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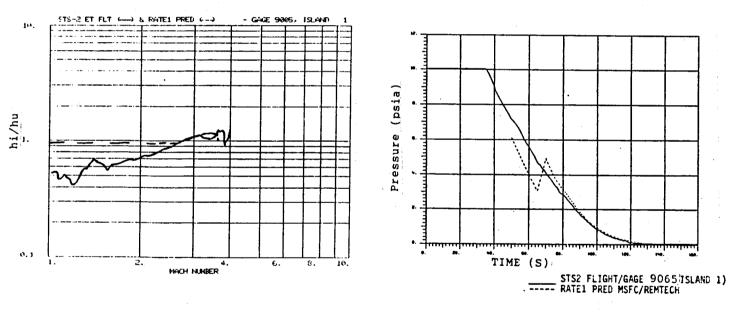




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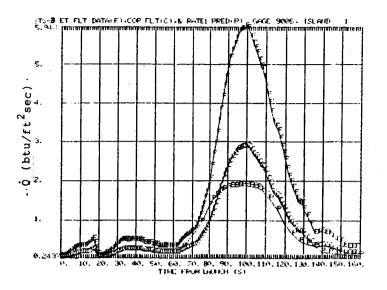
Fig. A.2e Aerothermal Analysis for Gage 9007 in STS-7

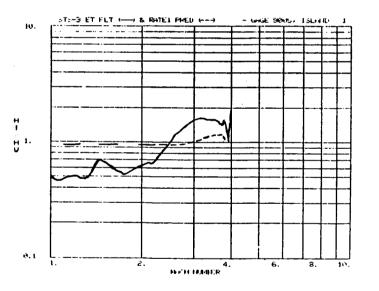


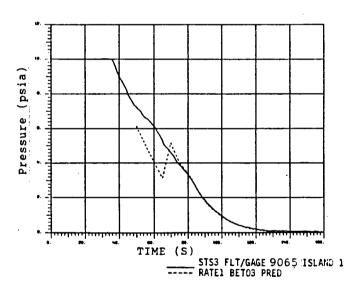


NOTE:

Fig. A.3a Aerothermal Analysis for Gage 9005 in STS-2

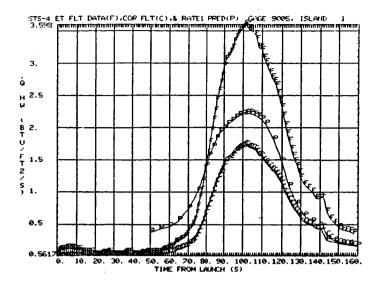


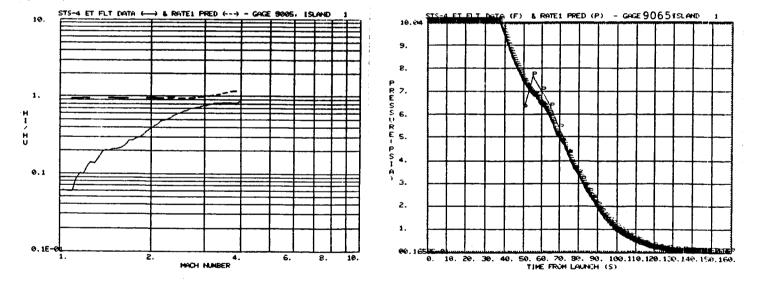




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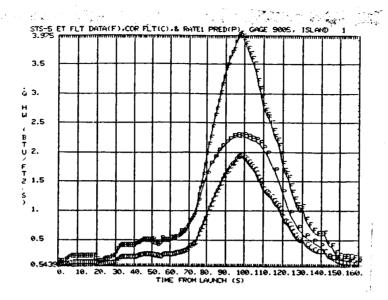
Fig. A.3b Aerothermal Analysis for Gage 9005 in STS-3

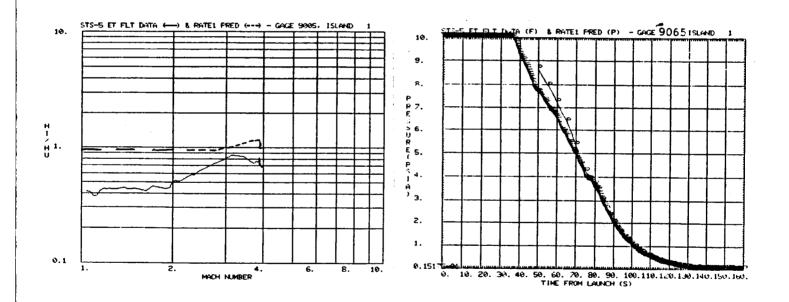




NOTE:
• Thermal Mismatch was Considered

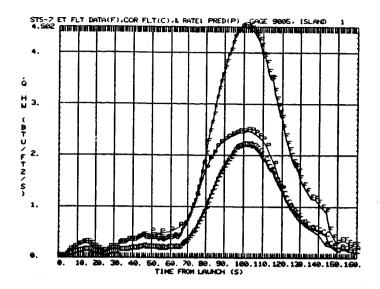
Fig. A.3c Aerothermal Analysis for Gage 9005 in STS-4

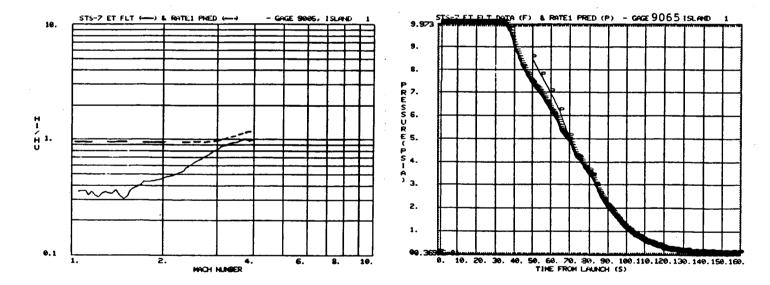




NOTE:
• Thermal Mismatch was Considered

Fig. A.3d Aerothermal Analysis for Gage 9005 in STS-5

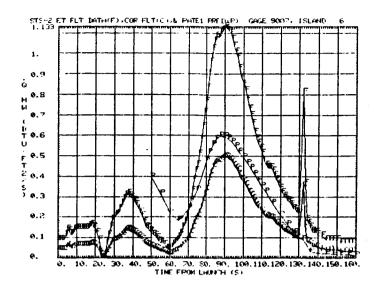


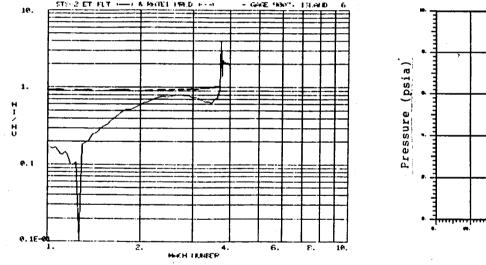


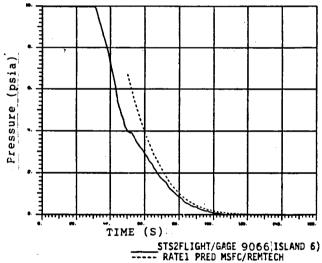
NOTE:

• Thermal Mismatch was Considered

Fig. A.3e Aerothermal Analysis for Gage 9005 in STS-7

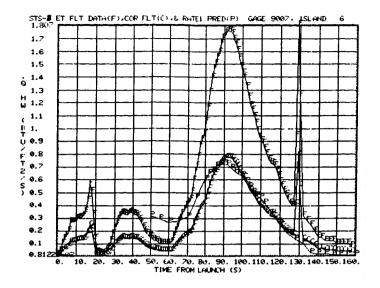


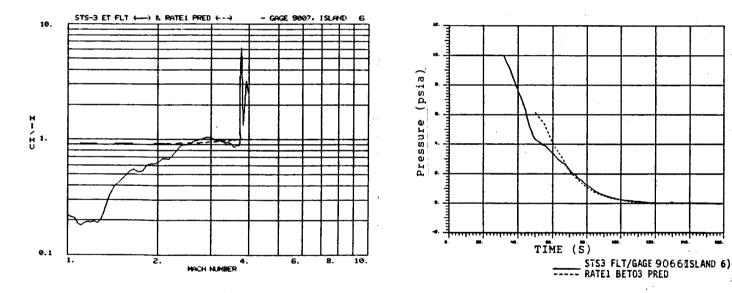




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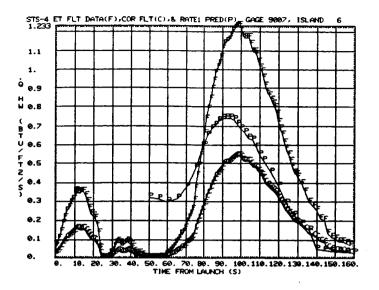
Fig. A.4a Aerothermal Analysis for Gage 9007 in STS-2

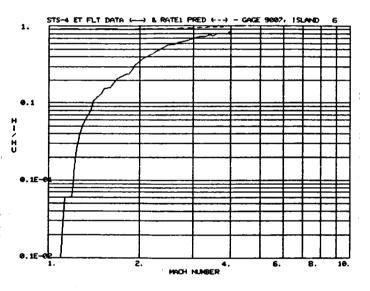


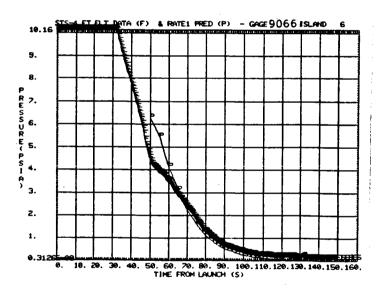


NOTE:
• Thermal Mismatch was Considered

Fig. A.4b Aerothermal Analysis for Gage 9007 in STS-3



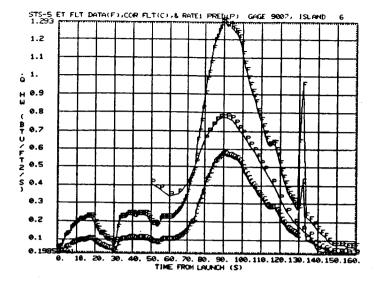


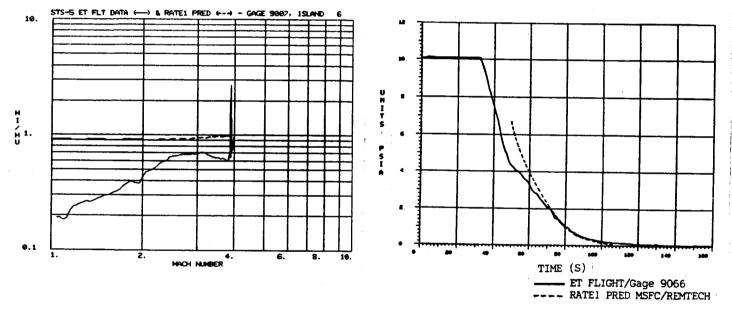


#### NOTE:

Fig. A.4c Aerothermal Analysis for Gage 9007 in STS-4

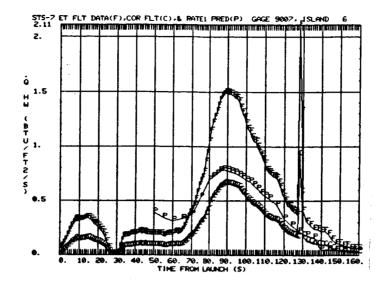
REMTECH INC.

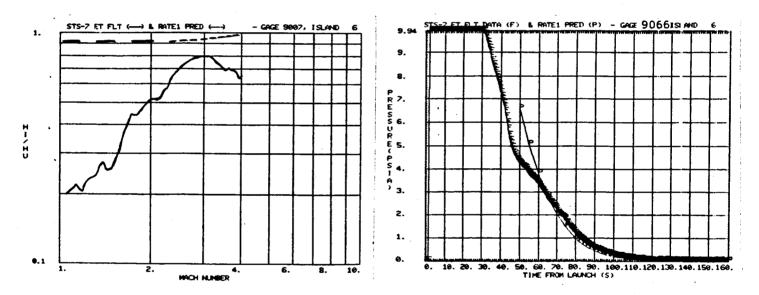




NOTE:

Fig. A.4d Aerothermal Analysis for Gage 9007 in STS-5

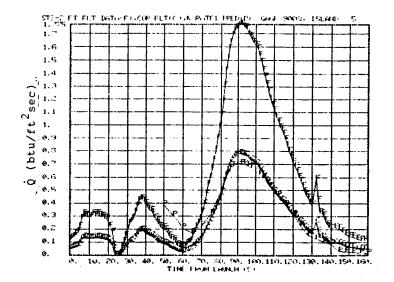


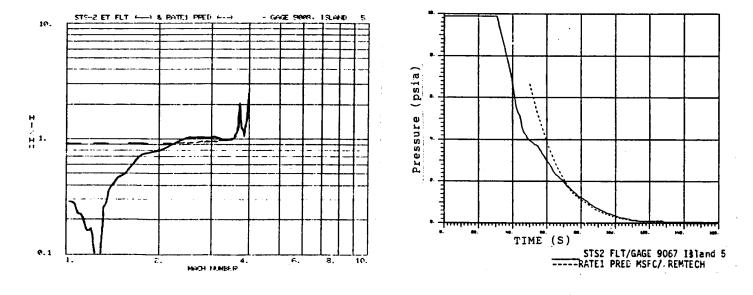


NOTE:

• Thermal Mismatch was Considered

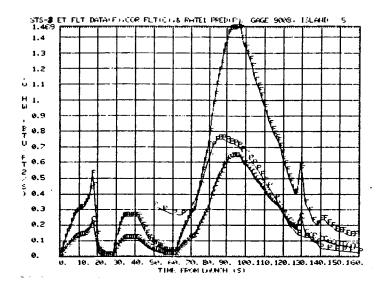
Fig. A.4e Aerothermal Analysis for Gage 9007 in STS-7

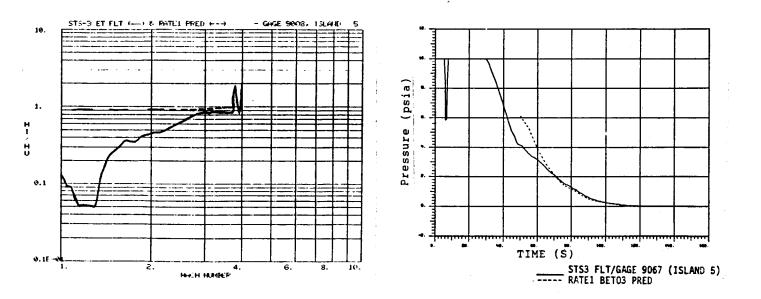




NOTE:
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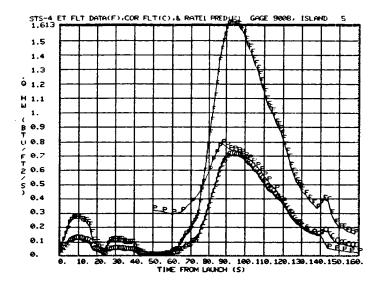
Fig. A.5a Aerothermal Analysis for Gage 9008 in STS-2

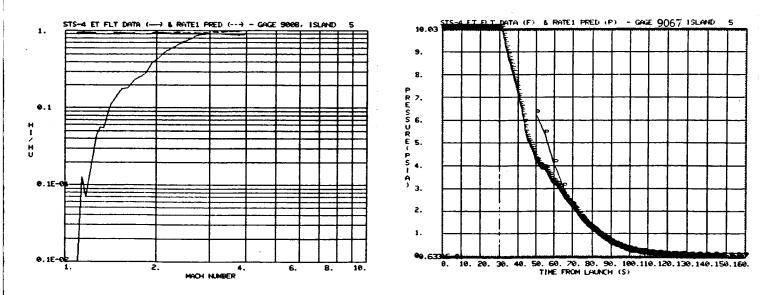




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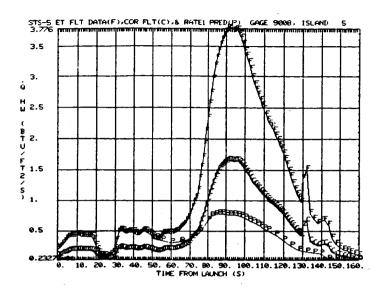
Fig. A.5b Aerothermal Analysis for Gage 9008 in STS-3

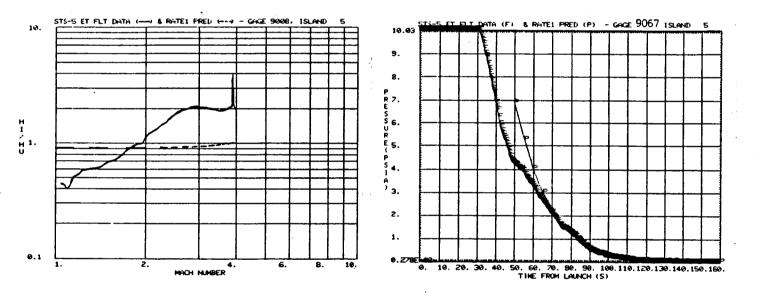




NOTE:
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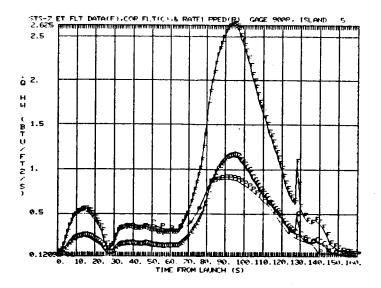
Fig. A.5c Aerothermal Analysis for Gage 9008 in STS-4

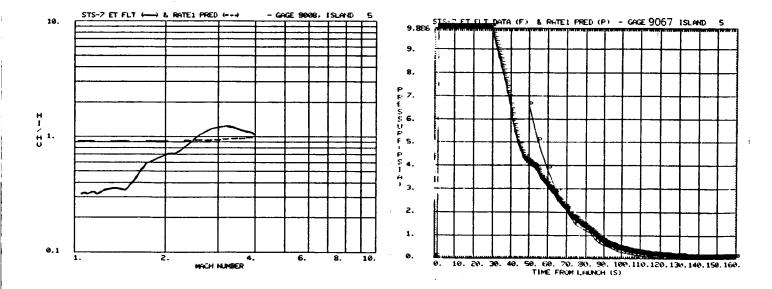




NOTE:
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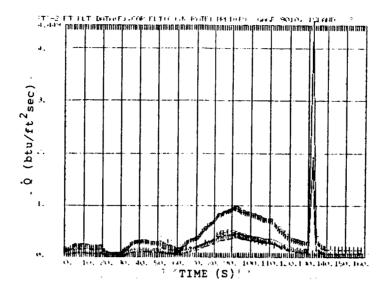
Fig. A.5d Aerothermal Analysis for Gage 9008 in STS-5

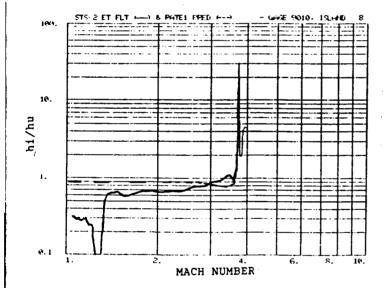




NOTE:
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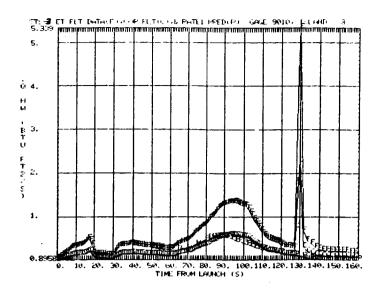
Fig. A.5e Aerothermal Analysis for Gage 9008 in STS-7

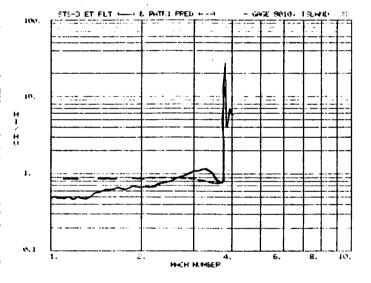




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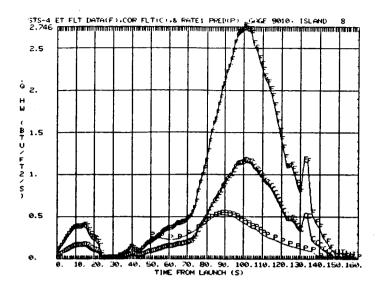
Fig. A.6a Aerothermal Analysis for Gage 9010 in STS-2

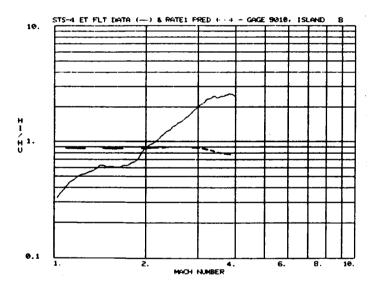




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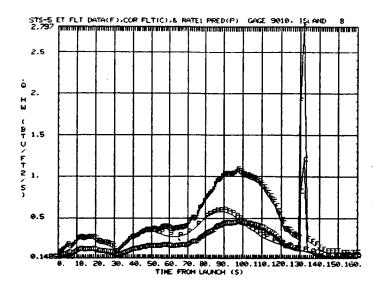
Fig. A.6b Aerothermal Analysis for Gage 9010 in STS-3

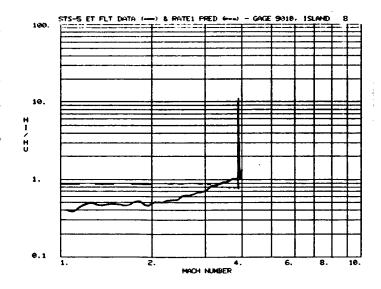




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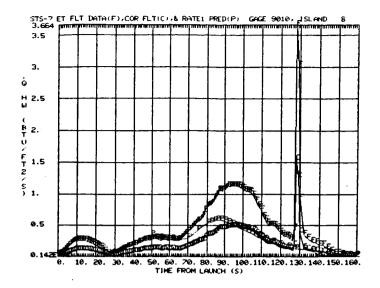
Fig. A.6c Aerothermal Analysis for Gage 9010 in STS-4

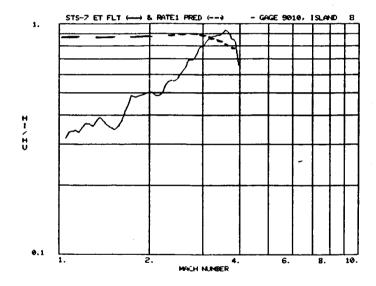




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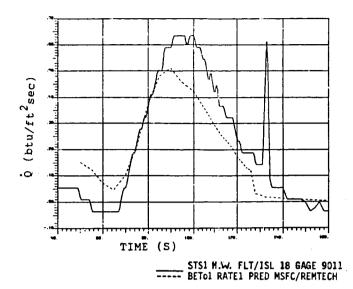
Fig. A.6d Aerothermal Analysis for Gage 9010 in STS-5

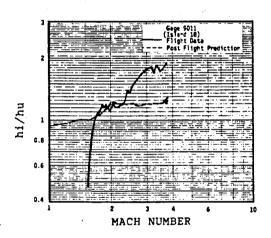




NOTE:

Fig. A.6e Aerothermal Analysis for Gage 9010 in STS-7





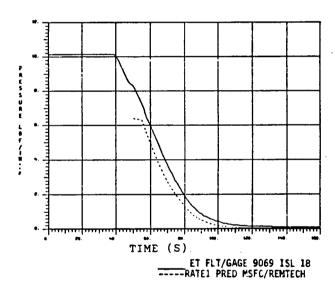
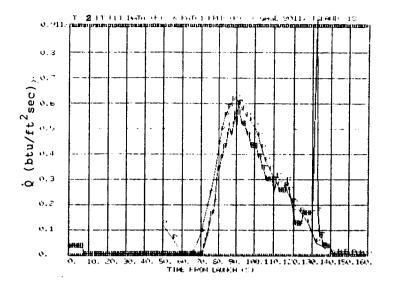


Fig. A.7a Aerothermal Analysis for Gage 9011 in STS-1



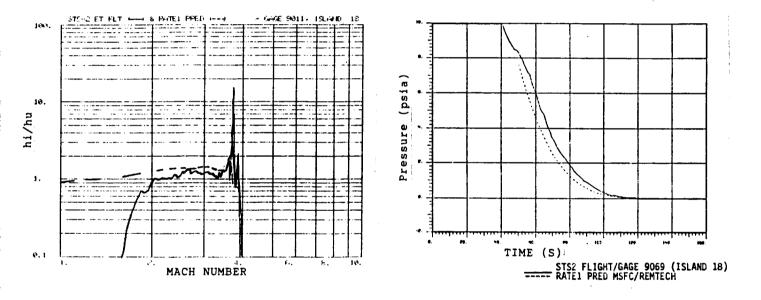
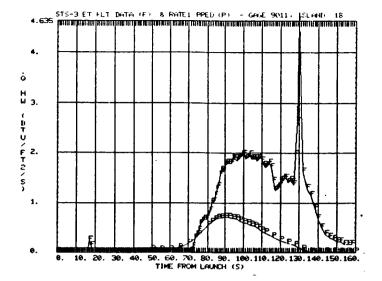


Fig. A.7b Aerothermal Analysis for Gage 9011 in STS-2



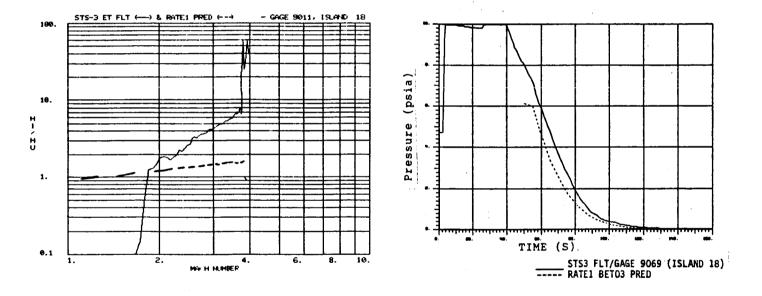
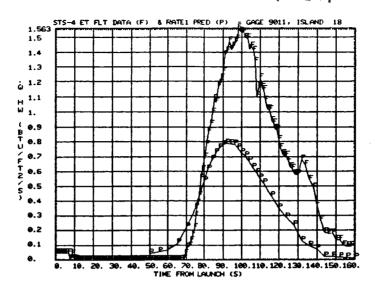
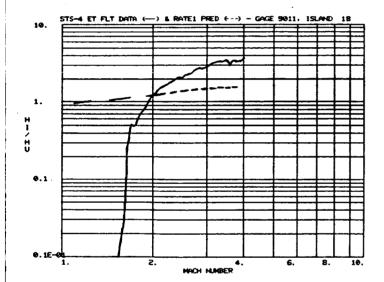


Fig. A.7c Aerothermal Analysis for Gage 9011 in STS-3





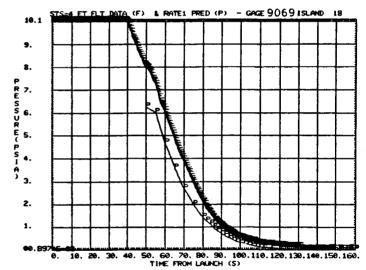
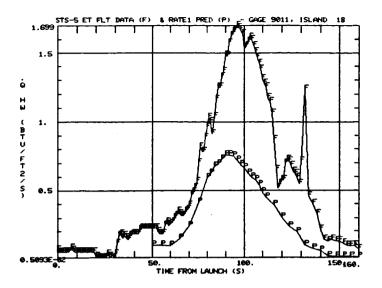


Fig. A.7d Aerothermal Analysis for Gage 9011 in STS-4



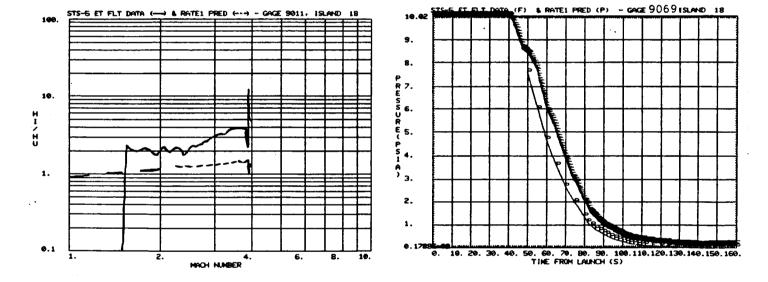
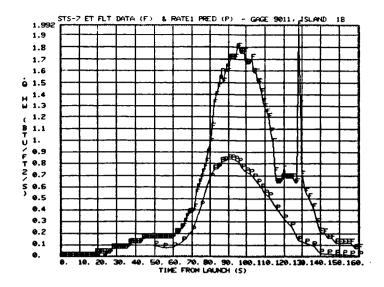


Fig. A.7e Aerothermal Analysis for Gage 9011 in STS-5



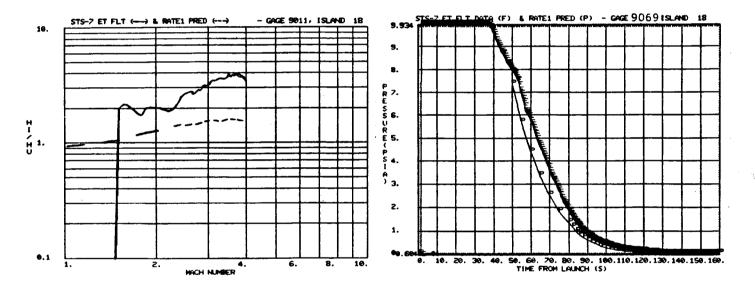
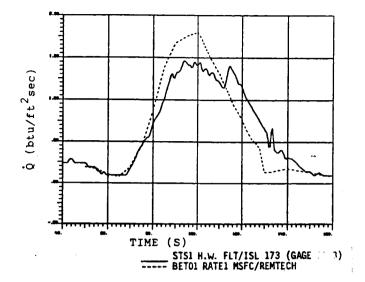
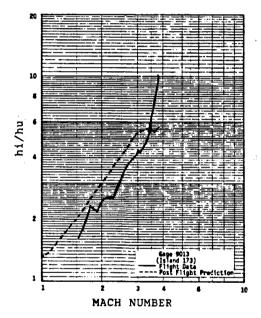


Fig. A.7f Aerothermal Analysis for Gage 9011 in STS-7





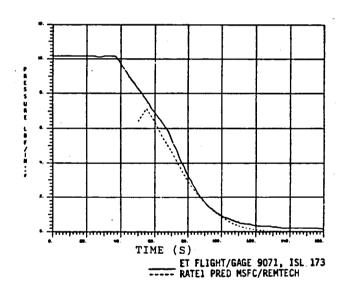
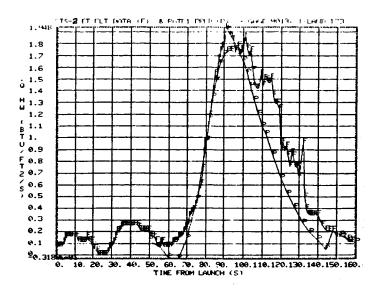


Fig. A.8a Aerothermal Analysis for Gage 9013 in STS-1



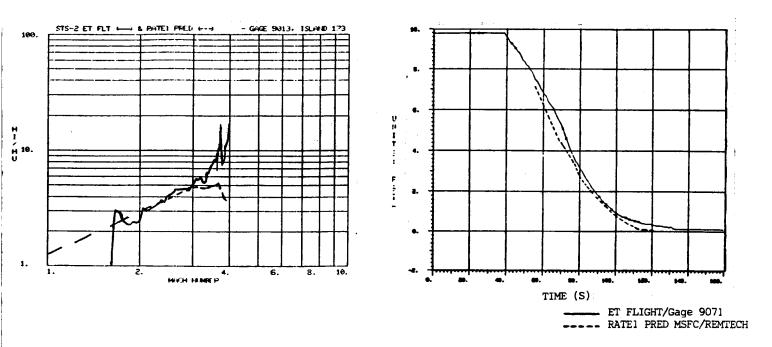
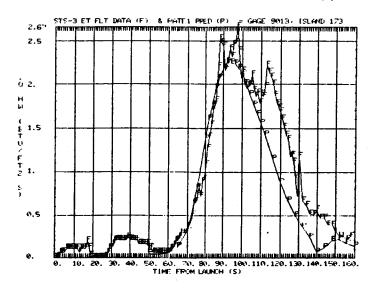


Fig. Fig. A.86 Aerothermal Analysis for Gage 9013 in STS-2

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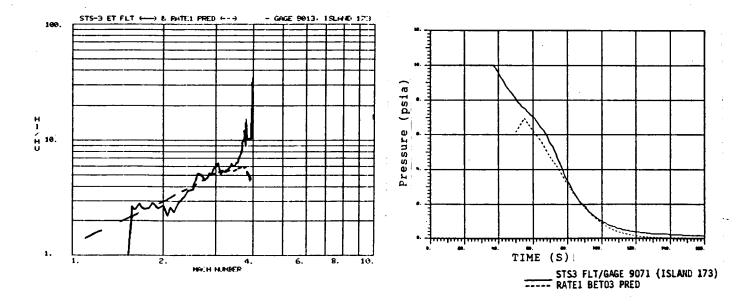
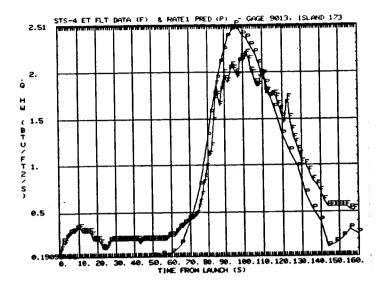


Fig. A.8c Aerothermal Analysis for Gage 9013 in STS-3



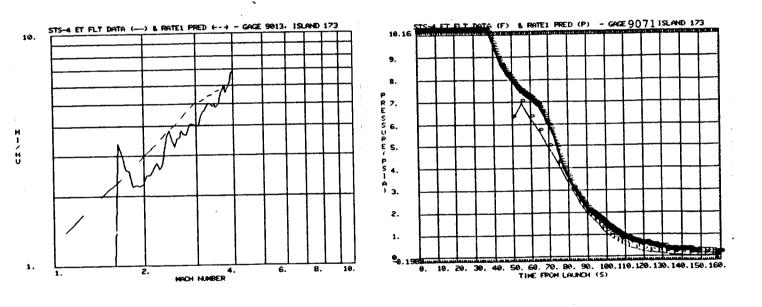
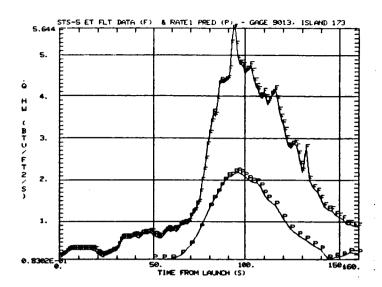
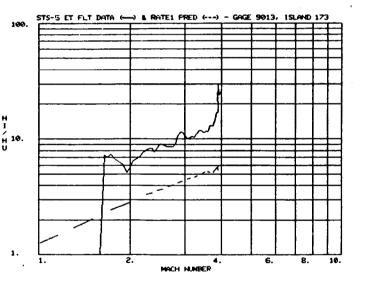


Fig. A.8d Aerothermal Analysis for Gage 9013 in STS-4





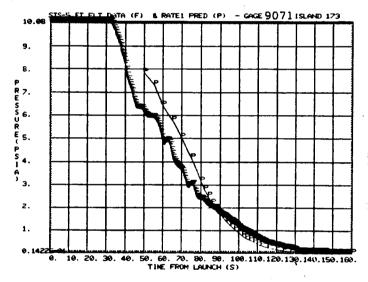
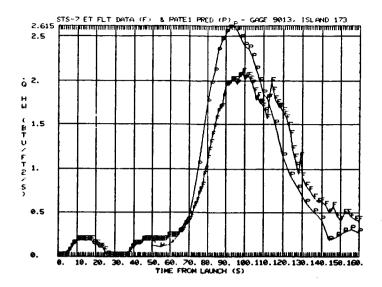
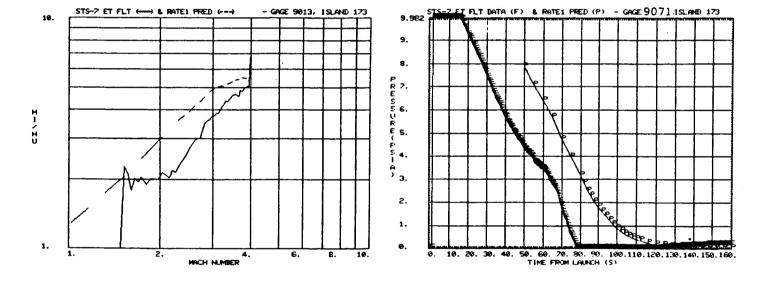


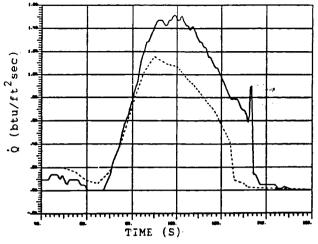
Fig. A.8e Aerothermal Analysis for Gage 9013 in STS-5





NOTE:
Bad Pressure Measurements

Fig. A.8f Aerothermal ANalysis for Gage 9013 in STS-7





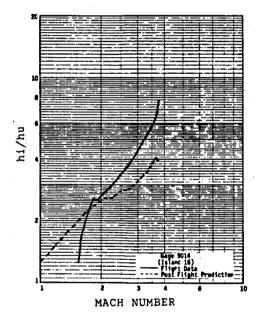
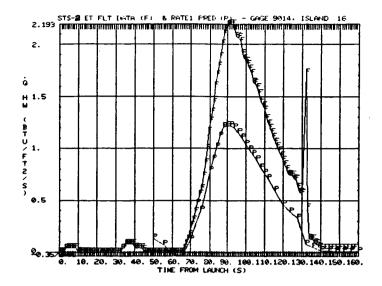


Fig. A.9a Aerothermal Analysis for GAge 9014 in STS-1



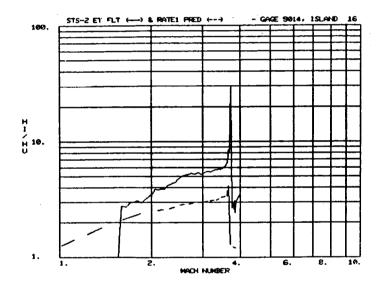
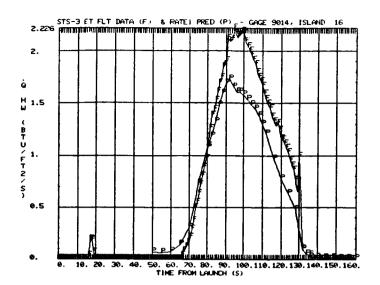


Fig. A.9b Aerothermal Analysis for Gage 9014 in STS-2



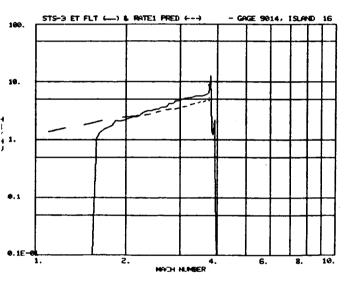
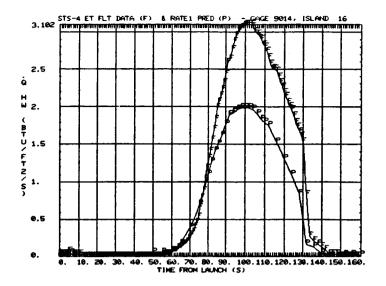


Fig. A.9c Aerothermal Analysis for Gage 9014 in STS-3



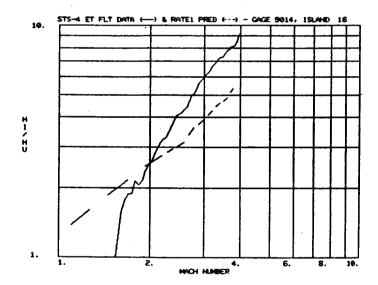
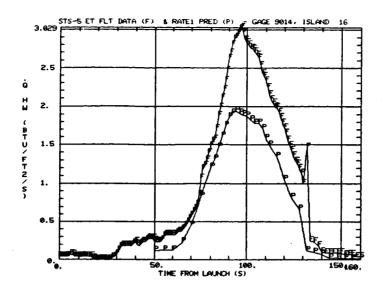


Fig. A.9d Aerothermal Analysis for GAge 9014 in STS-4



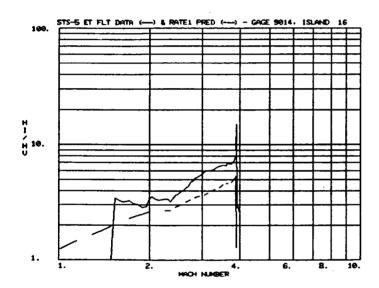
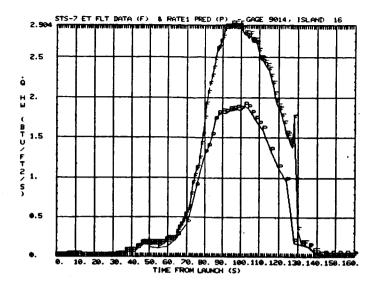


Fig. A.9e Aerothermal Analysis for Gage 9014 in STS-5



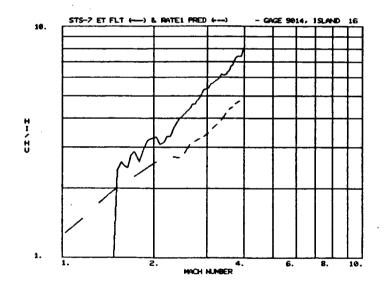
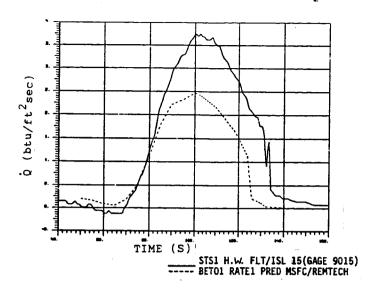
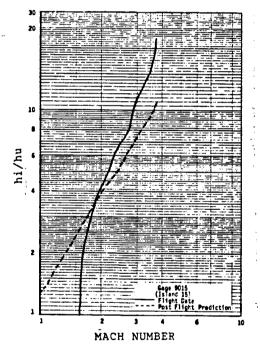


Fig. A.9f Aerothermal Analysis for Gage 9014 in STS-7





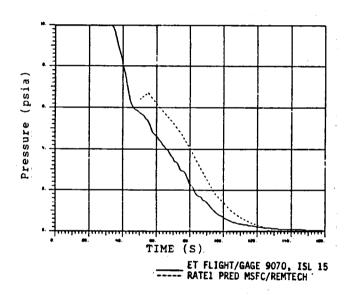
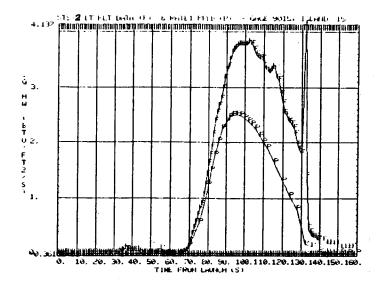


Fig. A.10a Aerothermal Analysis for Gage 9015 in STS-1



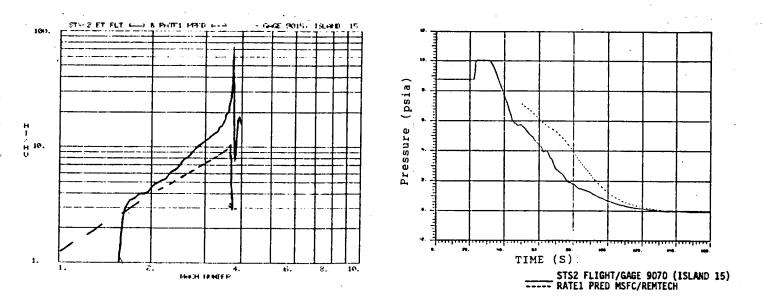
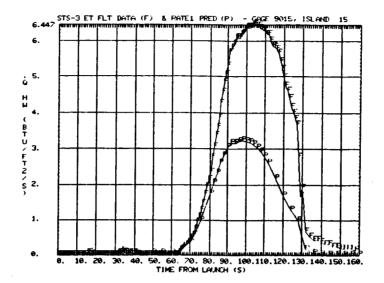
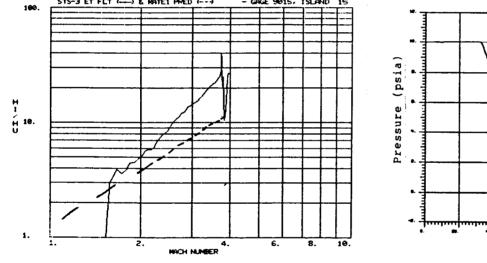


Fig. A.10b Aerothermal Analysis for Gage 9015 in STS-2





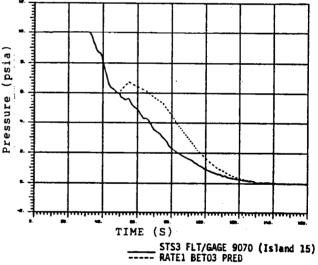
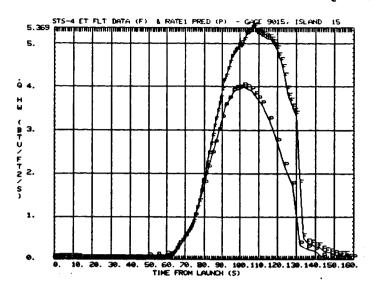


Fig. A.10c Aerothermal Analysis for Gage 9015 in STS-3



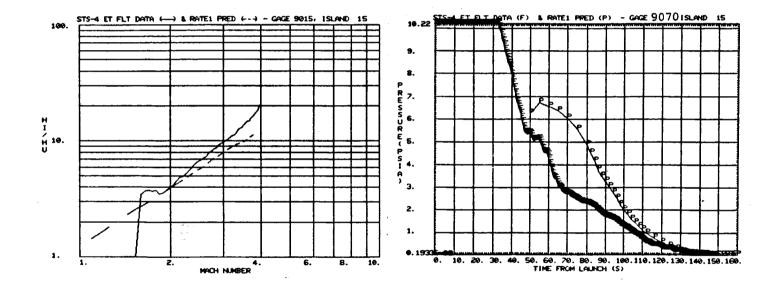
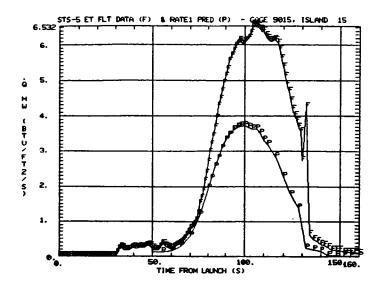


Fig. A.10d Aerothermal Analysis for Gage 9015 in STS-4



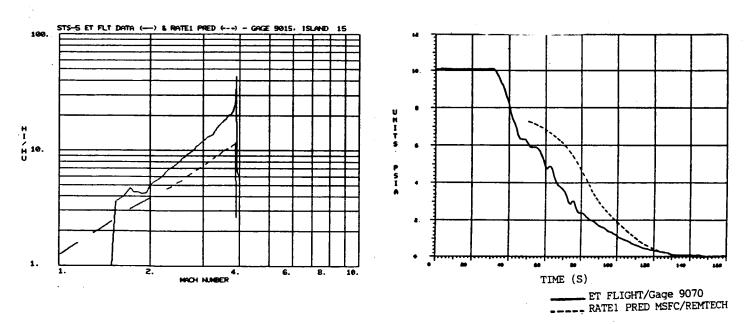
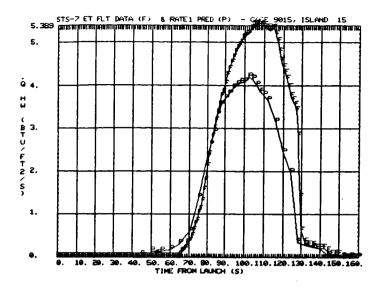


Fig. A.10e Aerothermal Analysis for GAge 9015 in STS-5



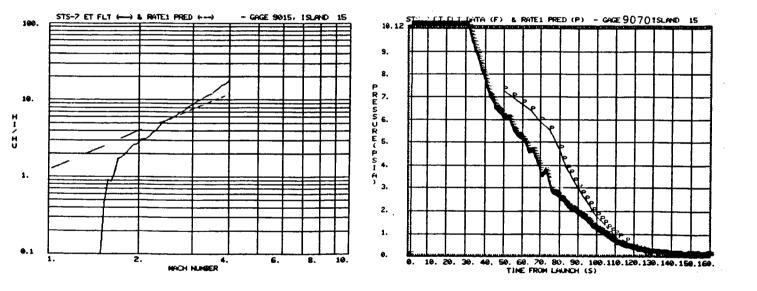
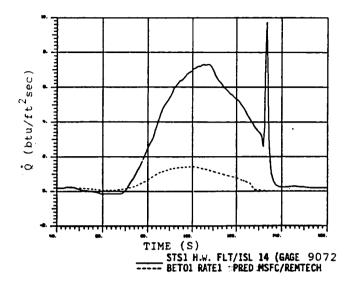


Fig. A.10f Aerothermal Analysis for Gage 9015 in STS-7



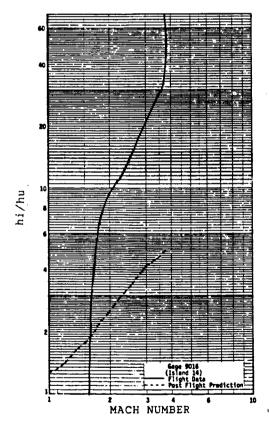
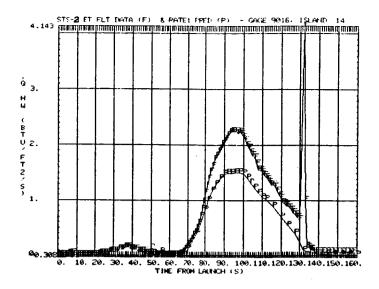


Fig. A.11a Aerothermal Analysis for Gage 9016 in STS-1



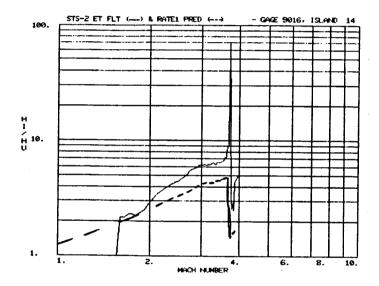
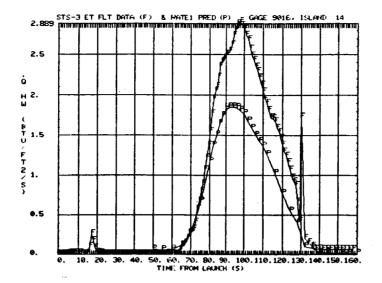


Fig. A.11b Aerothermal Analysis for Gage 9016 in STS-2



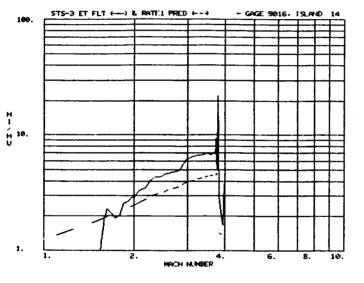
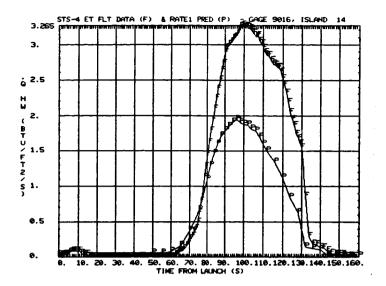


Fig. A.11c Aerothermal Analysis for Gage 9016 in STS-3



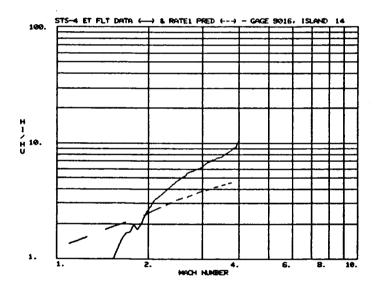
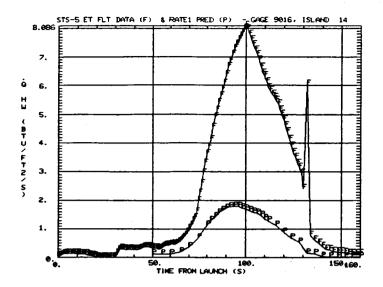


Fig. A.11d Aerothermal Analysis for Gage 9016 in STS-4



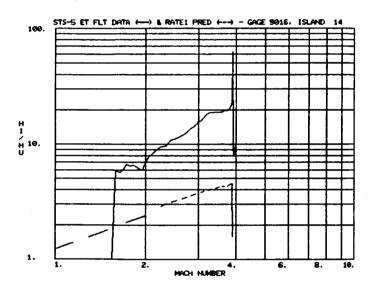
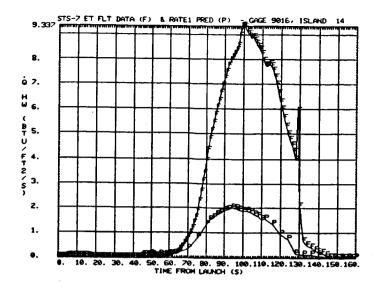


Fig. A.11e Aerothermal Analysis for GAge 9016 in STS-5



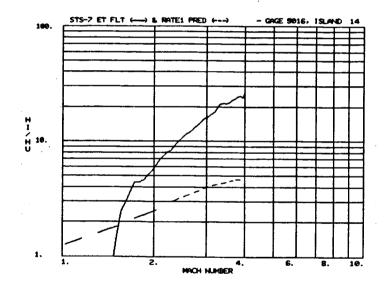
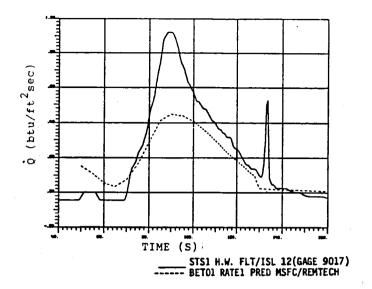


Fig. A.11f Aerothermal Analysis for Gage 9016 in STS-7



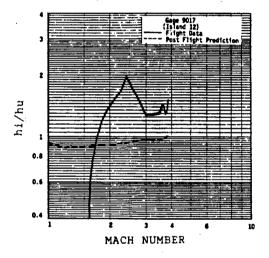
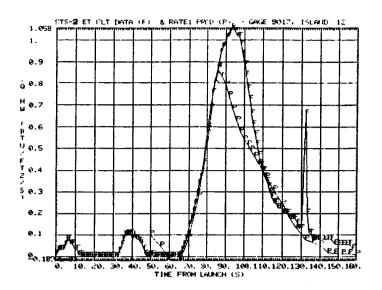


Fig. A.12a Aerothermal Analysis for Gage 9017 in STS-1



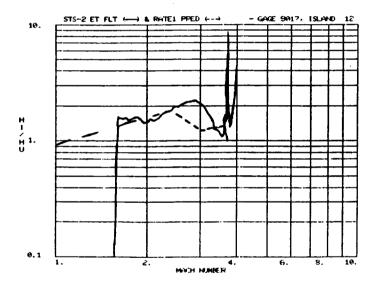
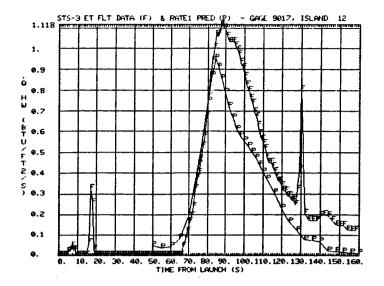


Fig. A.12b Aerothermal Analysis for Gage 9017 in STS-2



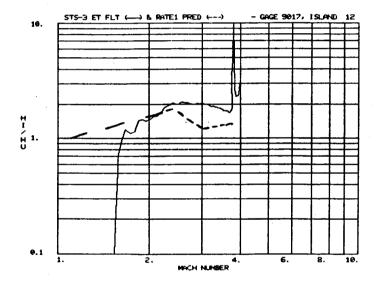
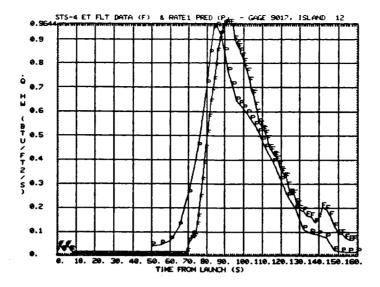


Fig. A.12c Aerothermal Analysis for Gage 9017 in STS-3



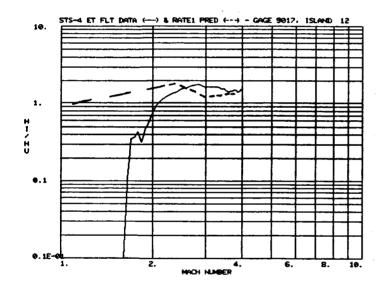
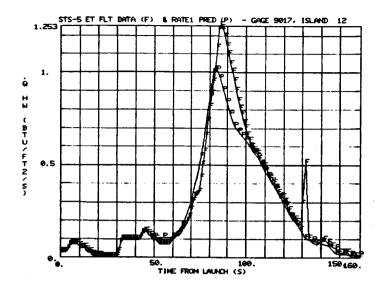


Fig. A.12d Aerothermal Analysis for Gage 9017 in STS-4



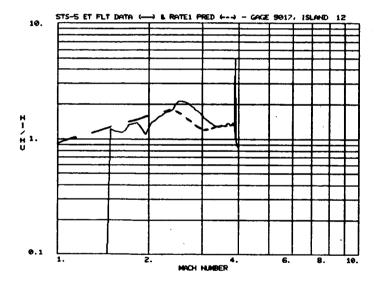
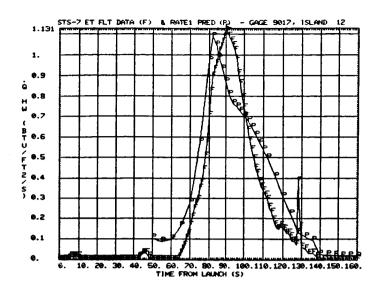


Fig. A.12e Aerothermal Analysis for Gage 9017 in STS-5



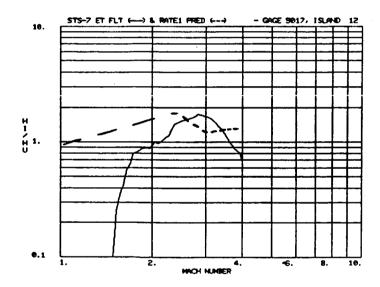
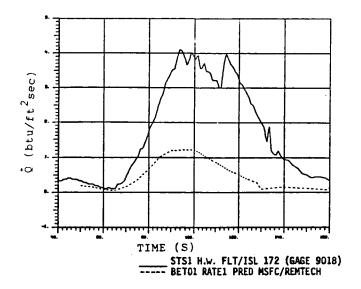


Fig. A.12f Aerothermal Analysis for Gage 9017 in STS-7



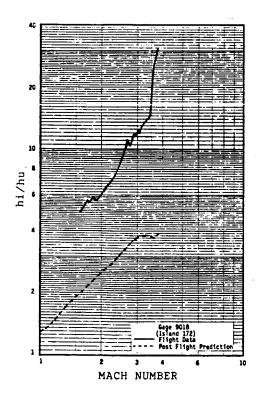
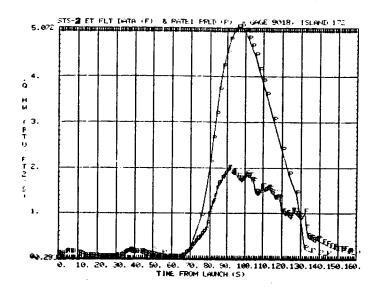


Fig. A.13a Aerothermal Analysis for Gage 9018 in STS-1



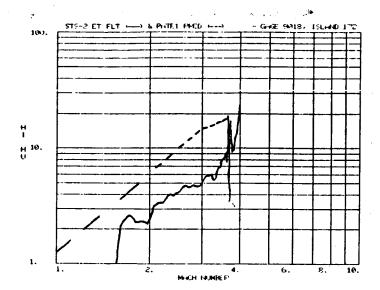
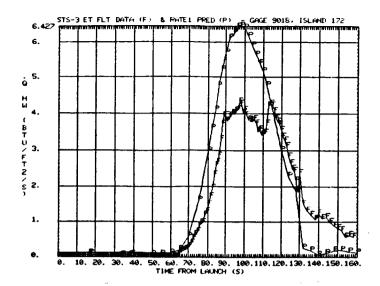


Fig. A.13b Aerothermal Analysis for Gage 9018 in STS-2



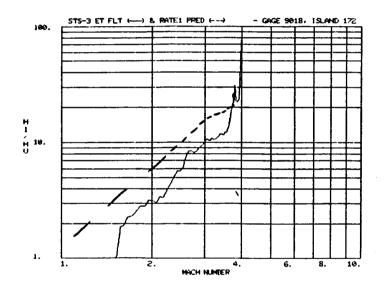
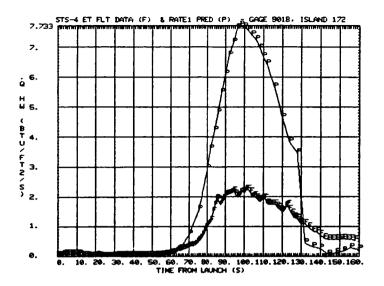


Fig. A.13c Aerothermal Analysis for Gage 9018 In STS-3



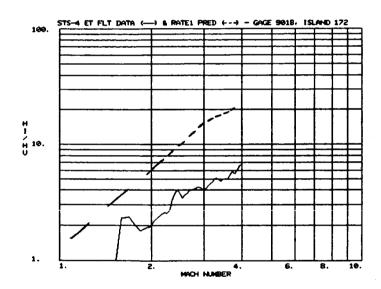
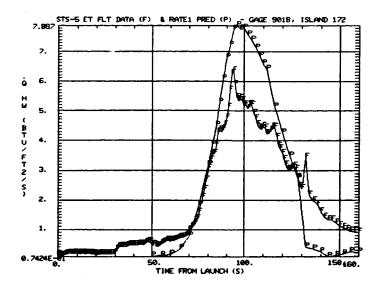


Fig. A.13d Aerothermal Analysis for Gage 9018 in STS-4



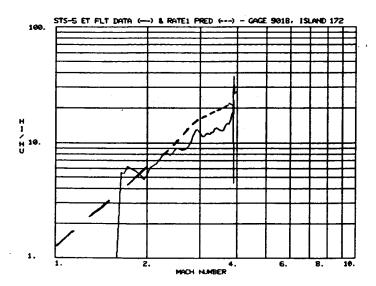
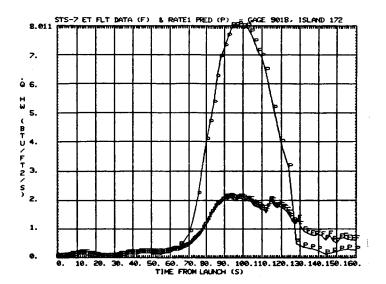


Fig. A.13e Aerothermal Analysis for Gage 9018 in STS-5



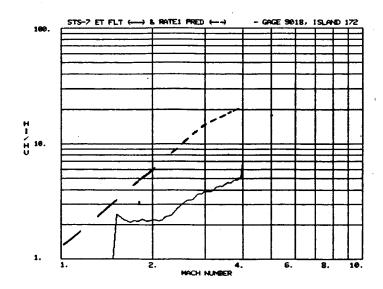
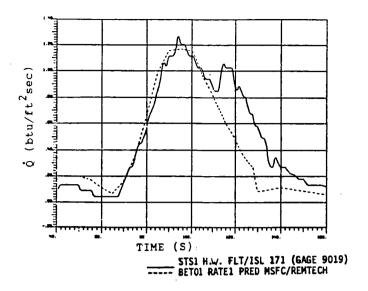


Fig. A.13f Aerothermal Analysis for Gage 9018 in STS-7



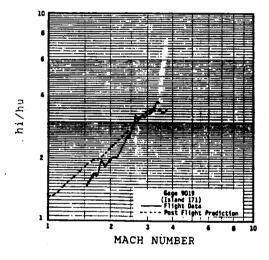
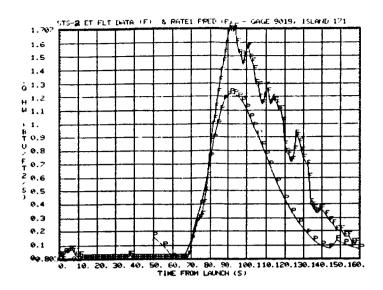


Fig. A.14a Aerothermal Analysis for Gage 9019 in STS-1



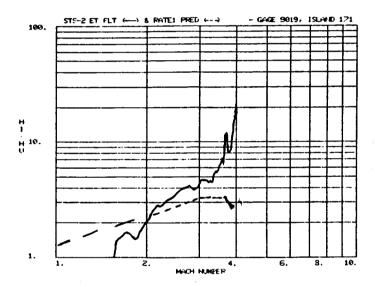
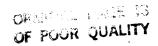
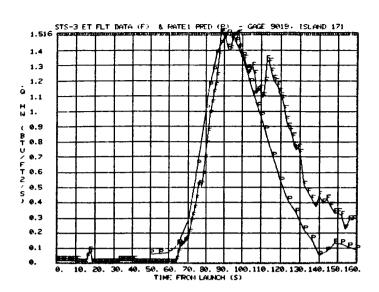


Fig. A.14b Aerothermal Analysis for Gage 9019 in STS-2





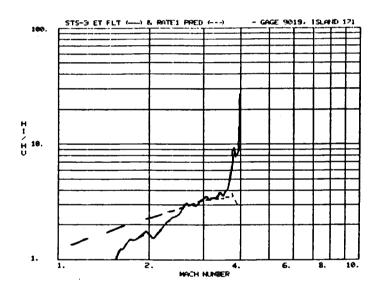
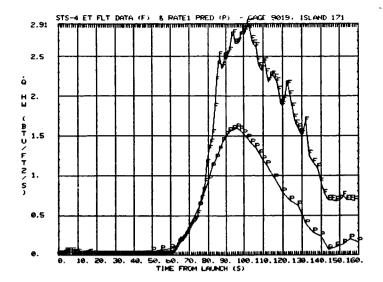


Fig. A.14c Aerothermal Analysis for Gage 9019 in STS-3



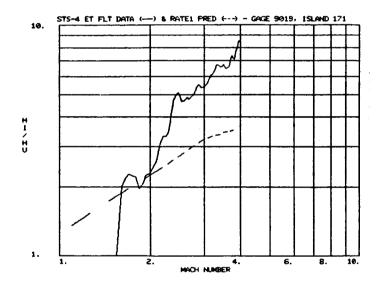
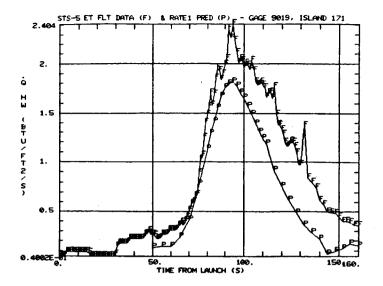


Fig. A.14d Aerothermal Analysis for Gage 9019 in STS-4



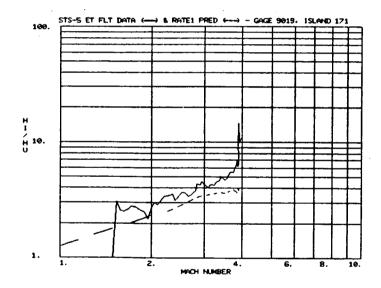
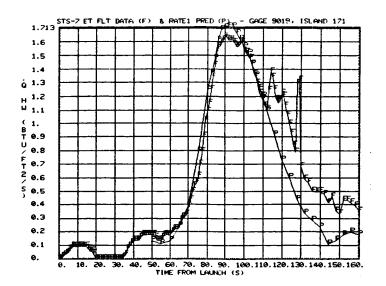


Fig. A.14e Aerothermal Analysis for Gage 9019 in STS-5



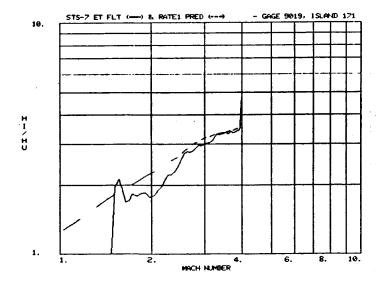
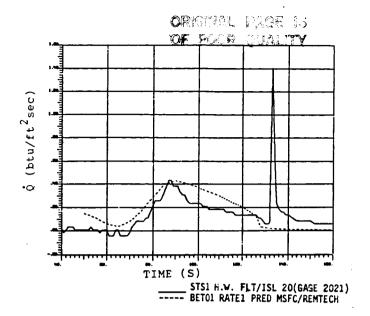


Fig. A.14f Aerothermal Analysis for Gage 9019 In STS-7



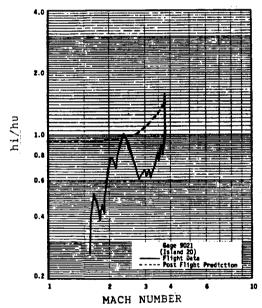
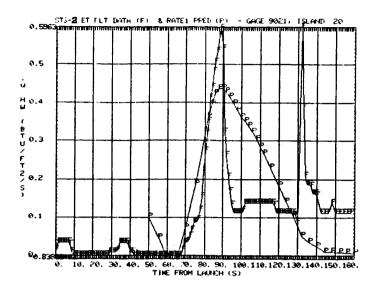


Fig. A.15a Aerothermal Analysis for Gage 9021 in STS-1



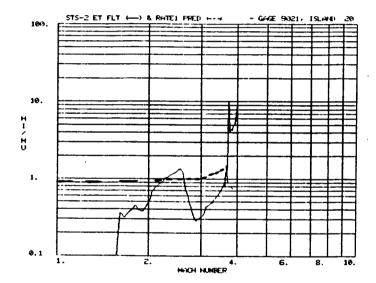
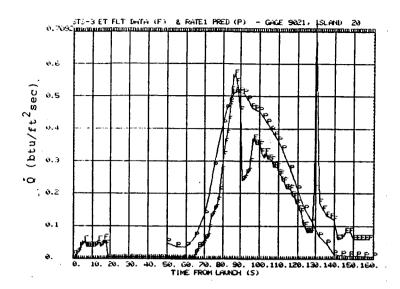


Fig. A.15b Aerothermal Analysis for Gage 9021 in STS-2



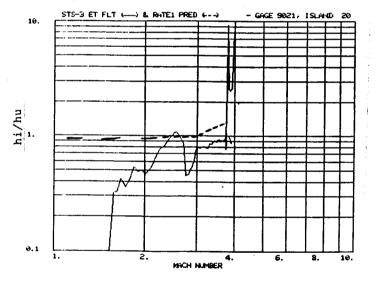
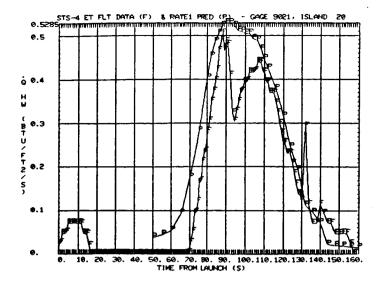


Fig. A.15c Aerothermal Analysis for Gage 9021 in STS-3



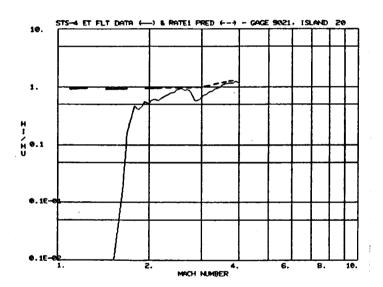
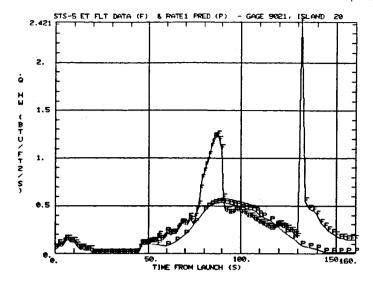


Fig. A.15d Aerothermal Analysis for Gage 9021 in STS-4



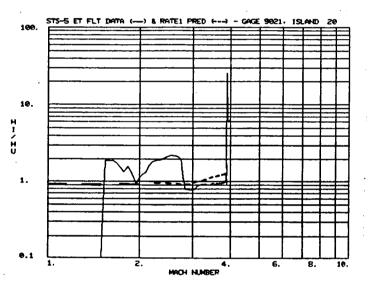
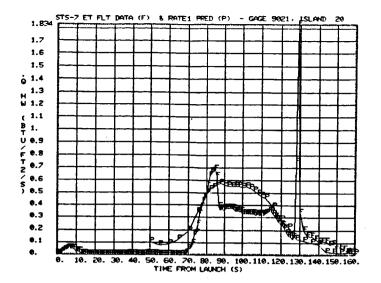


Fig. A.15e Aerothermal Analysis for Gage 9021 in STS-5



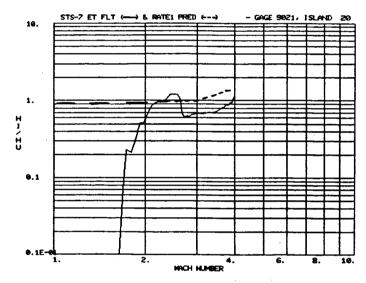
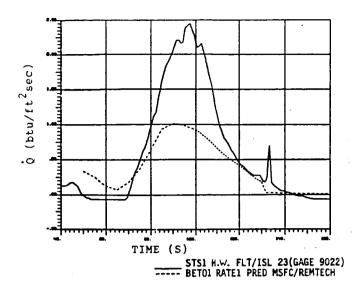
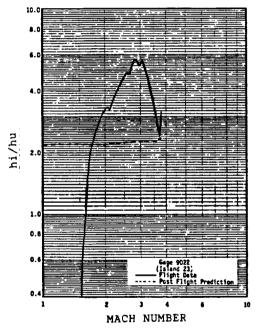
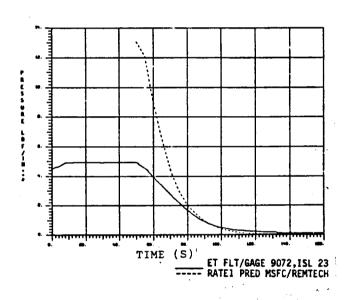


Fig. A.15f Aerothermal Analysis for Gage 9021 in STS-7

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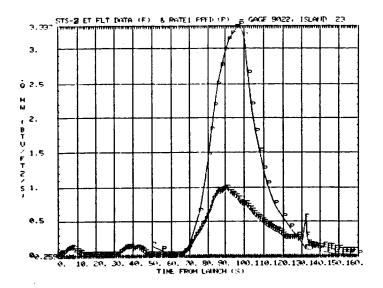




NOTE:

• Bad Pressure Measurements

Fig. A.16a Aerothermal Analysis for Gage 9022 in STS-1



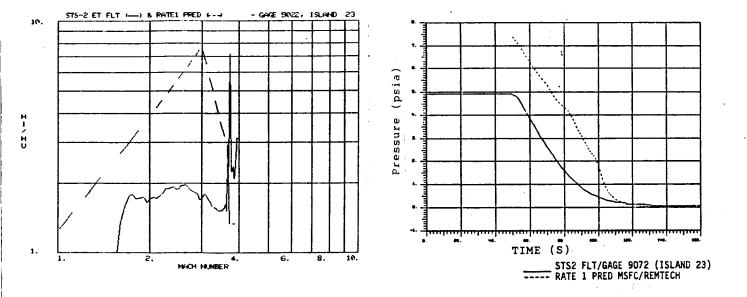
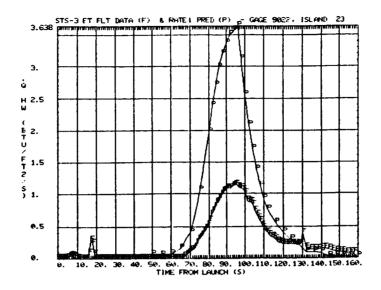


Fig. A.16b Aerothermal Analysis for Gage 9022 in STS-2



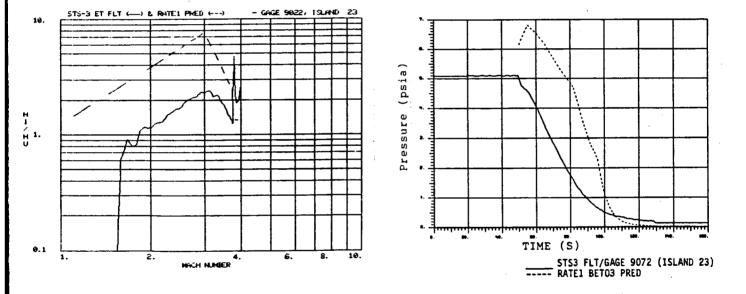
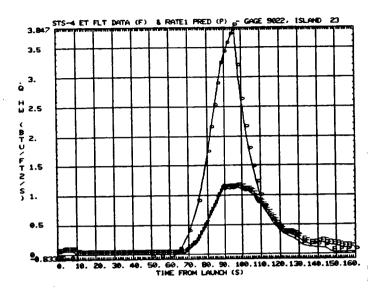


Fig. A.16c Aerothermal Analysis for Gage 9022 in STS-3

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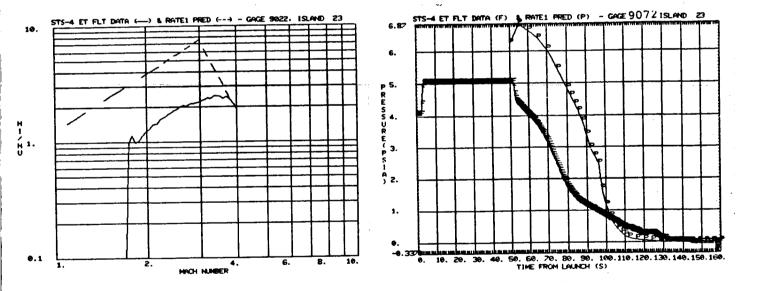
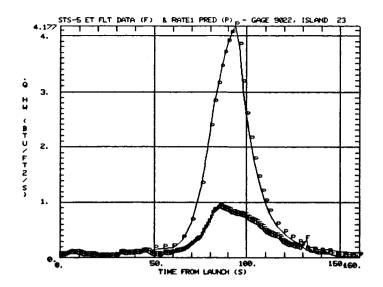


Fig. A.16d Aerothermal Analysis for Gage 9022 in STS-4



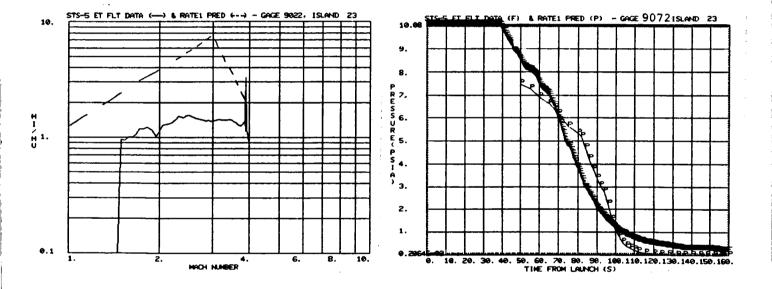
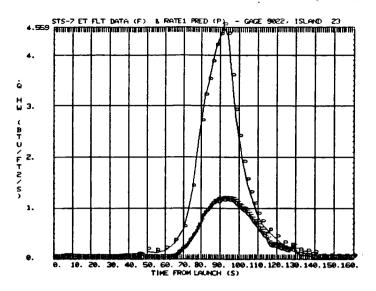


Fig. A.16e Aerothermal Analysis for Gage 9022 in STS-5



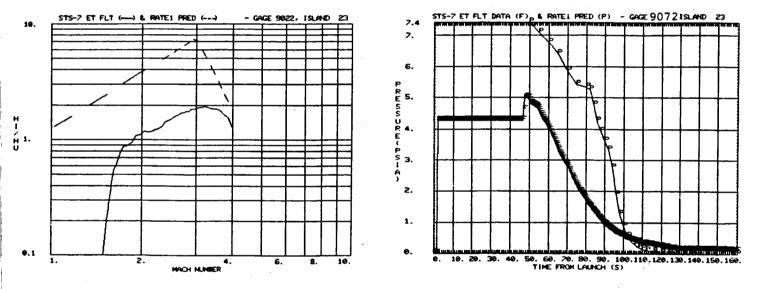
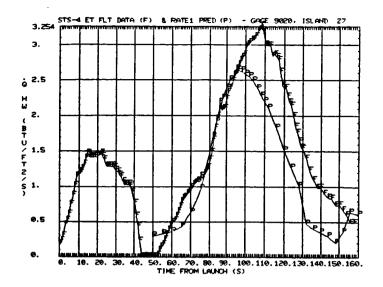


Fig. A.16f Aerothermal Analysis for Gage 9022 in STS-7



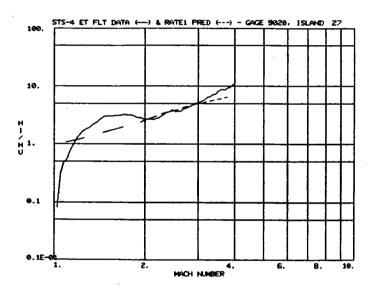
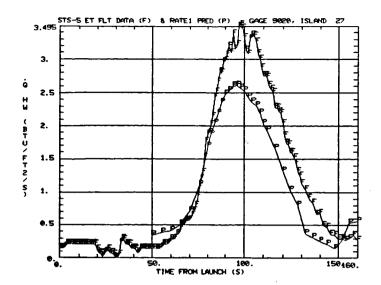


Fig. A.17a Aerothermal Analysis for Gage 9020 in STS-4



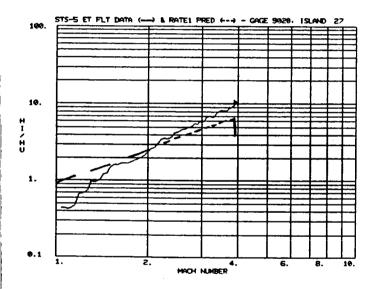
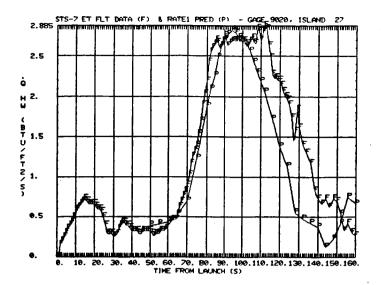


Fig. A.17b Aerothermal Analysis for Gage 9020 in STS-5



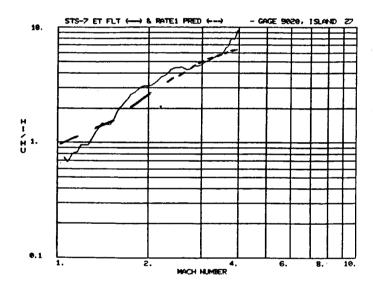
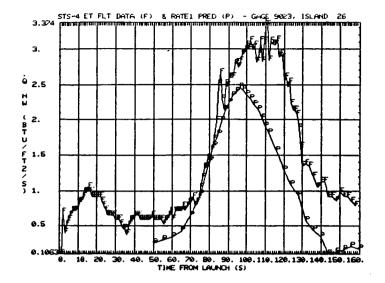


Fig. A.17c Aerothermal Analysis for Gage 9020 in STS-7



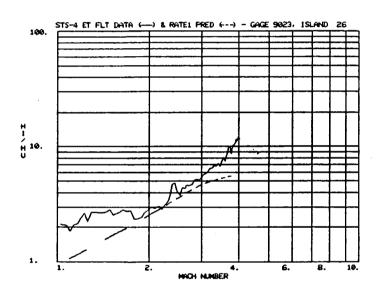
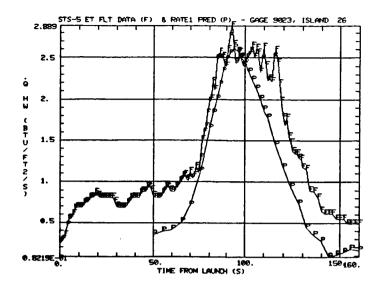


Fig. A.18a Aerothermal Analysis for GAge 9023 in STS-4



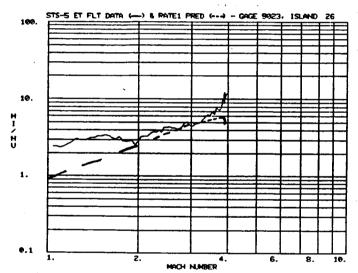
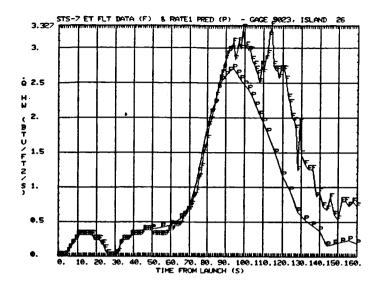


Fig. A.18b Aerothermal Analysis for GAge 9023 in STS-5



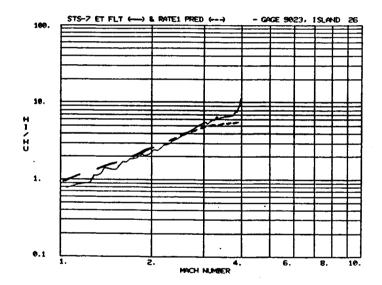
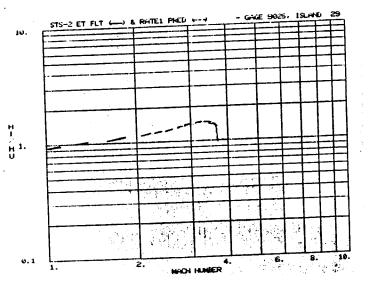


Fig. A.18c Aerothermal Analysis for Gage 9023 in STS-7

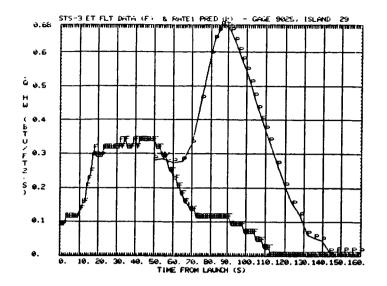
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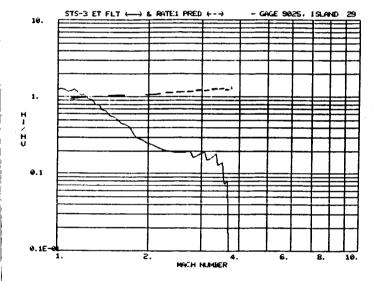


NOTE:

• Bad Heating Rate Measurements

Fig. A.19a Aerothermal Analysis for Gage 9025 in STS-2



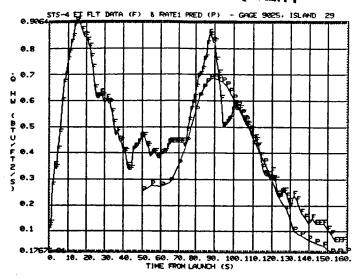


## NOTE:

• Bad Heating Rate Measurements

Fig. A.19b Aerothermal Analysis for Gage 9025 in STS-3

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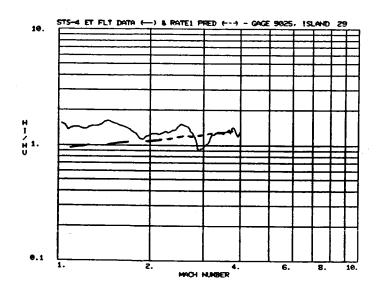
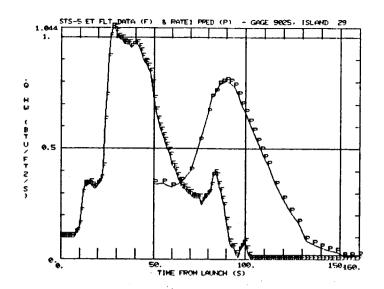
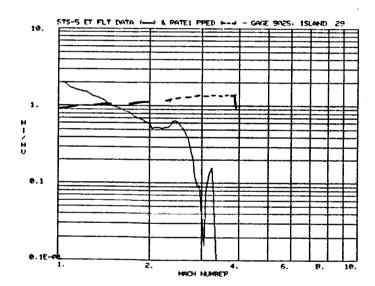


Fig. A.19c Aerothermal Analysis for Gage 9025 in STS-4

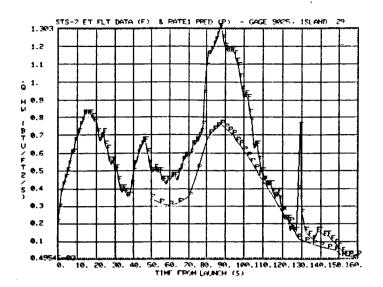




NOTE:

Bad Heating Rate Measurements

Fig. A.19d Aerothermal Analysis for Gage 9025 in STS-5



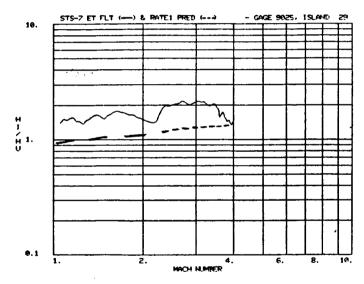
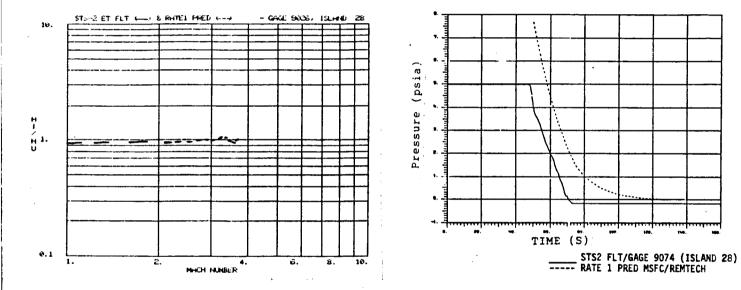


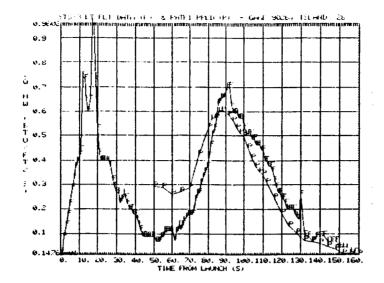
Fig. A.19e Aerothermal Analysis for Gage 9025 in STS-7

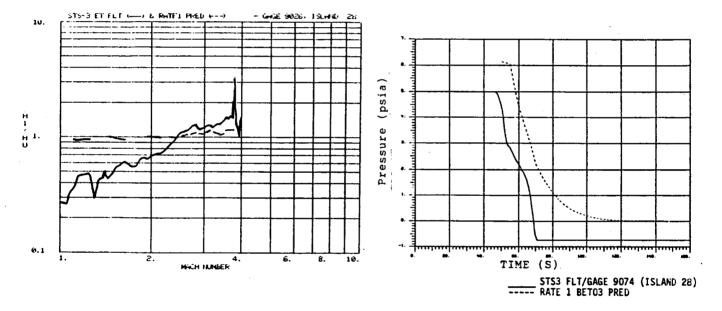
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### NOTE:

- Bad Pressure Measurements
- Bad Heating Rate Measurements



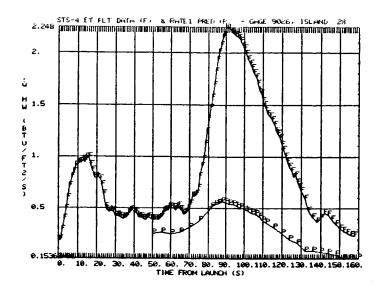


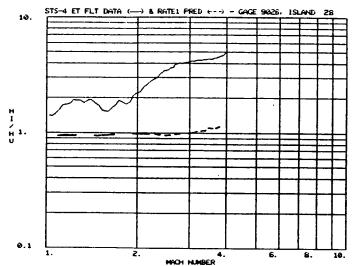
NOTE:

• Bad Pressure Measurements

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Fig. A.20b Aerothermal Analysis for Gage 9026 in STS-3





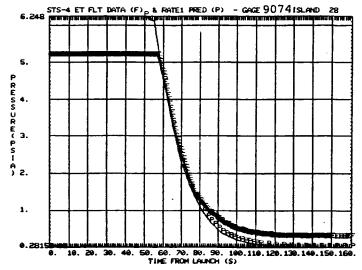
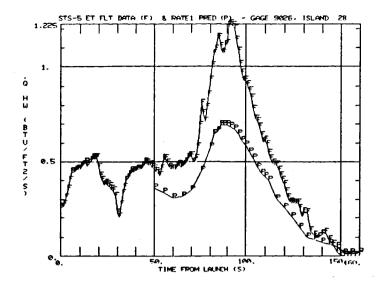


Fig. A.20c Aerothermal Analysis for Gage 9026 in STS-4



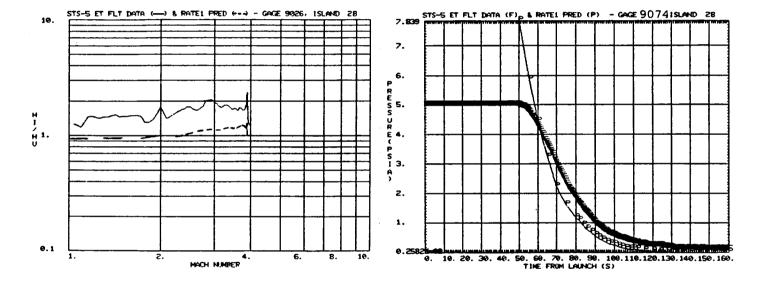
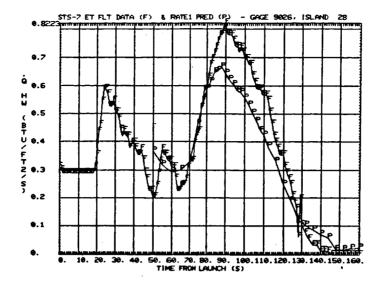


Fig. A.20d Aerothermal Analysis for GAge 9026 in STS-5



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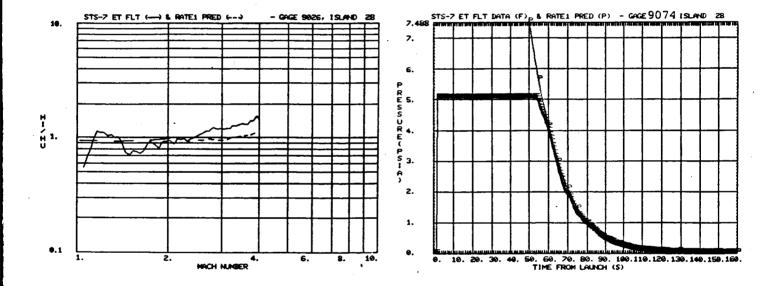
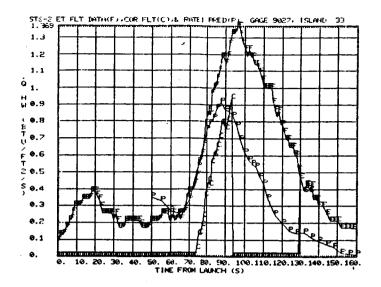
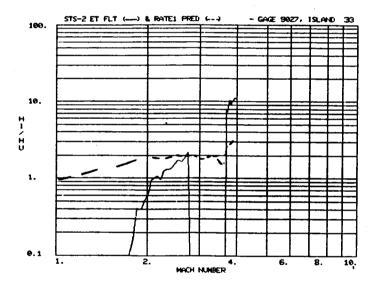


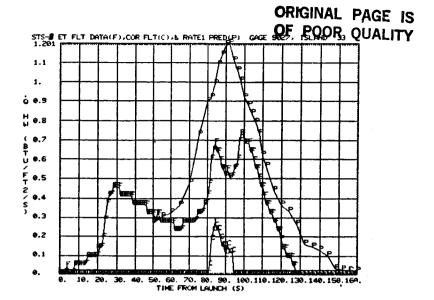
Fig. A.20e Aerothermal Analysis for Gage 9026 in STS-7





## NOTE:

Fig. A.21a Aerothermal Analysis for Gage 9027 in STS-2



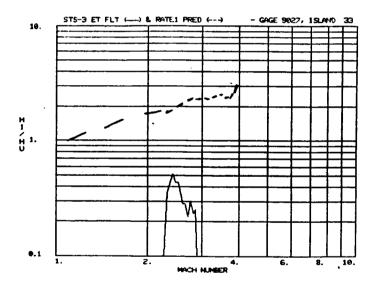
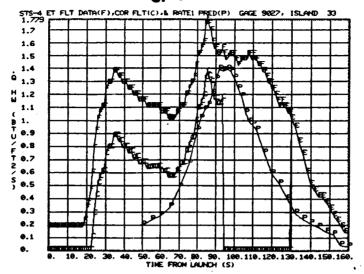
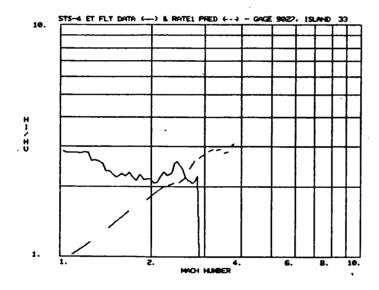


Fig. A.21b Aerothermal Analysis for Gage 9027 in STS-3

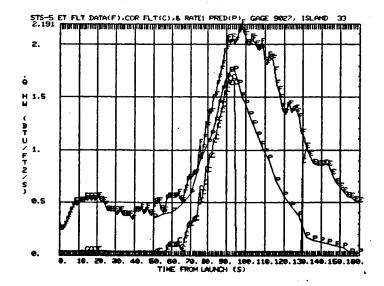
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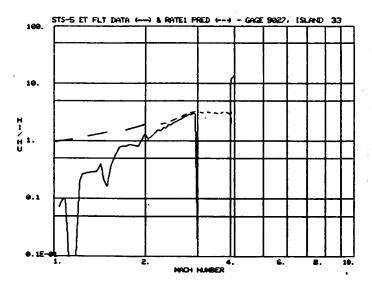




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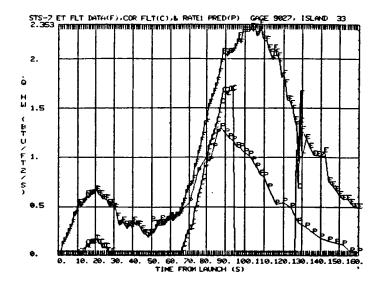
Fig. A.21c Aerothermal Analysis for GAge 9027 in STS-4





NOTE:

Fig. A.21d Aerothermal Analysis for Gage 9027 in STS-5



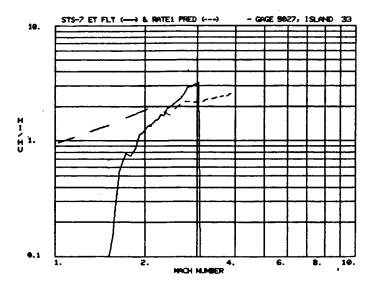
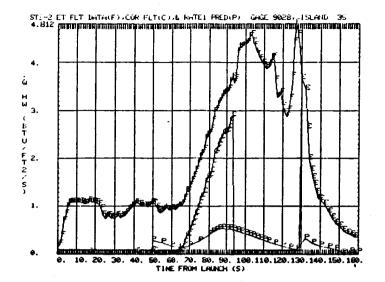


Fig. A.21e Aerothermal Analysis for Gage 9027 in STS-7



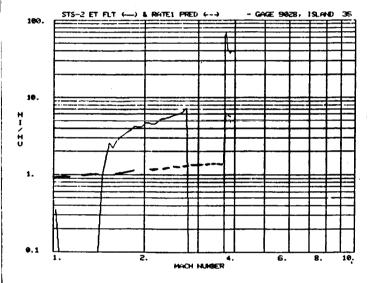
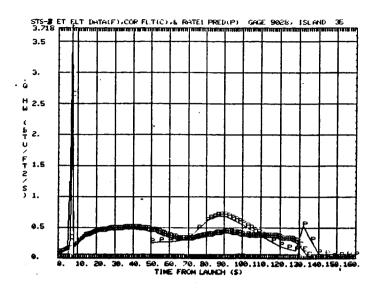
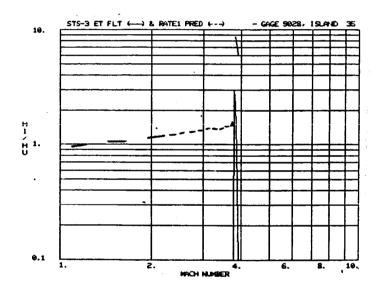


Fig. A.22a Aerothermal Analysis for Gage 9028 in STS-2

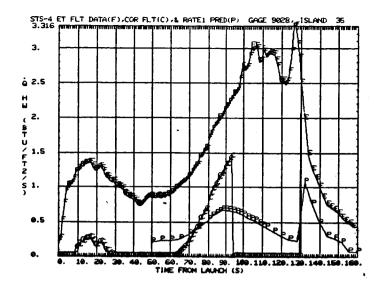
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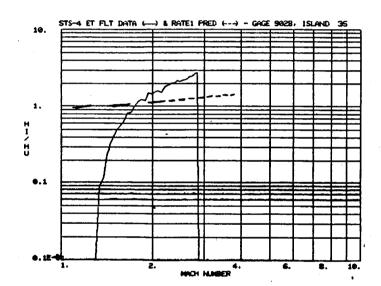




NOTE:
• Questionable Measurements

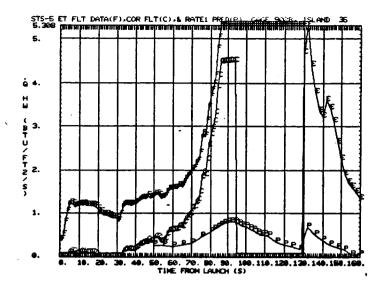
Fig. A.22b Aerothermal Analysis for Gage 9028 in STS-3





NOTE:

Fig. A.22c Aerothermal Analysis for Gage 9028 in STS-4



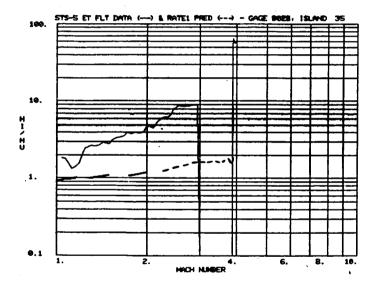
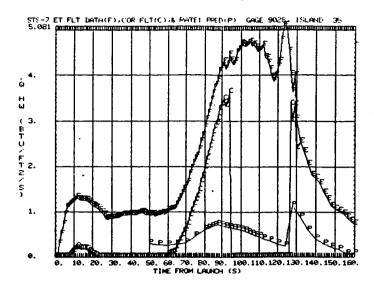


Fig. A.22d Aerothermal Analysis for Gage 9028 in STS-5



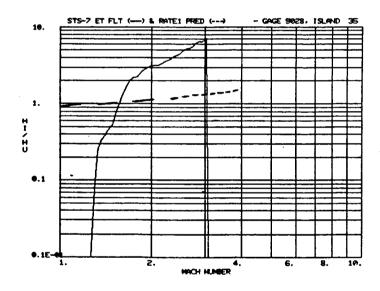
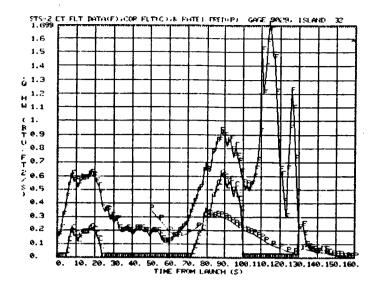
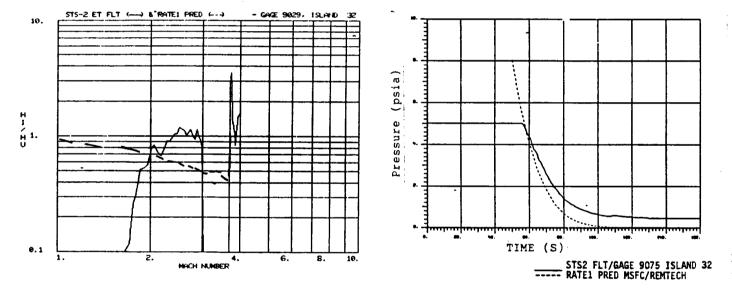


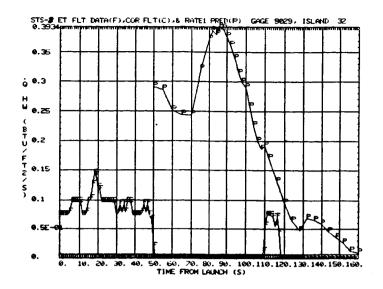
Fig. A.22e Aerothermal Analysis for Gage 9028 in STS-7

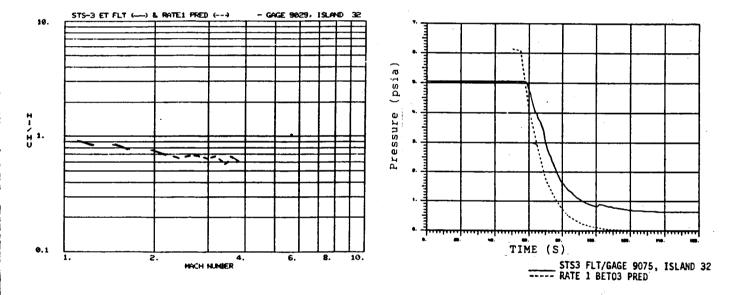




NOTE:
• Plume-Induced Heating was Considered

Fig. A.23a Aerothermal Analysis for Gage 9029 in STS-2



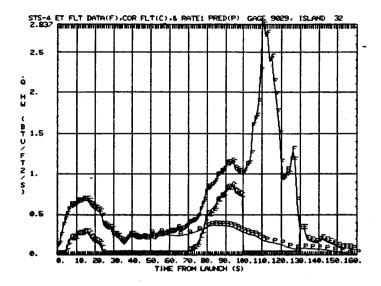


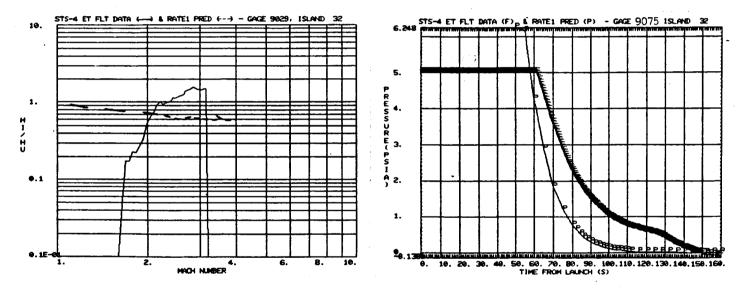
NOTE:

• Bad Heating Rate Measurements

Fig. A.23b Aerothermal Analysis for Gage 9029 in STS-3

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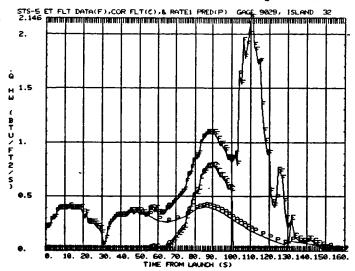


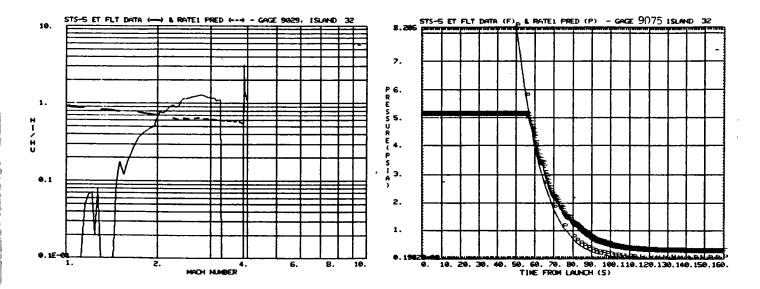


NOTE:

Fig. A.23c Aerothermal Analysis for Gage 9029 in STS-4

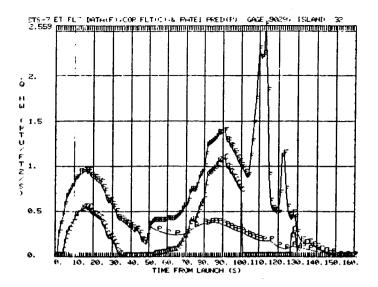
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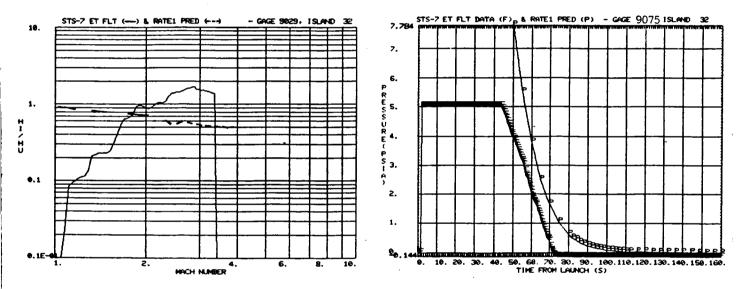




NOTE:

Fig. A.23d Aerothermal Analysis for GAge 9029 in STS-5

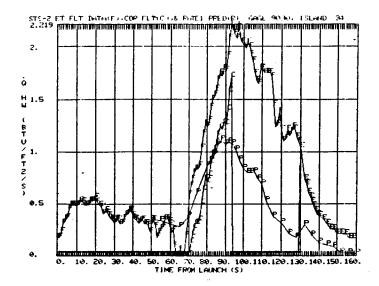


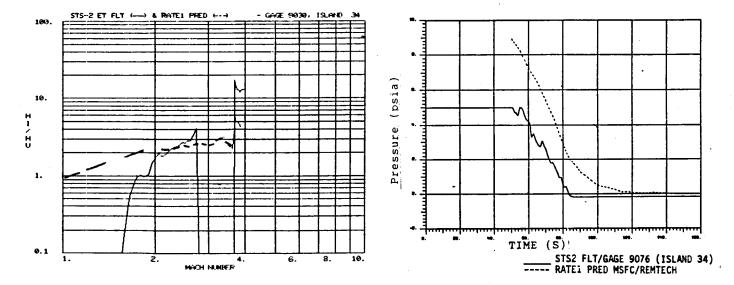


## NOTE:

- Plume-Induced Heating was Considered
- Bad Pressure Measurements

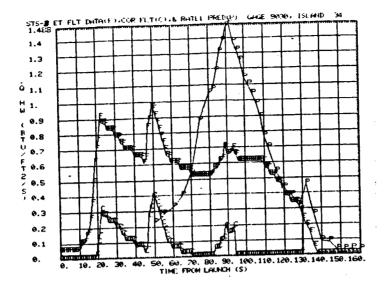
Fig. A.23e Aerothermal Analysis for Gage 9029 in STS-7

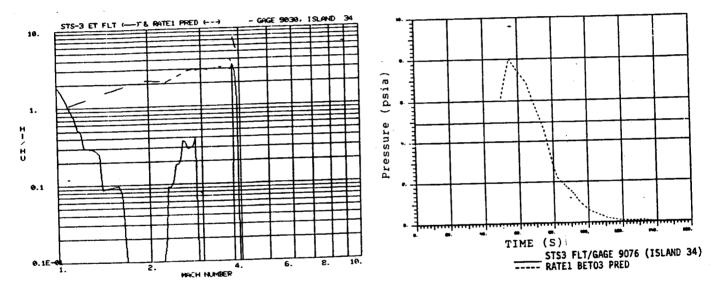




- Plume-Induced Heating was Considered
- Bad Pressure Measurements

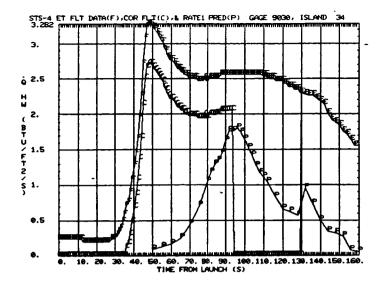
Fig. A.24a Aerothermal Analysis for Gage 9030 in STS-2

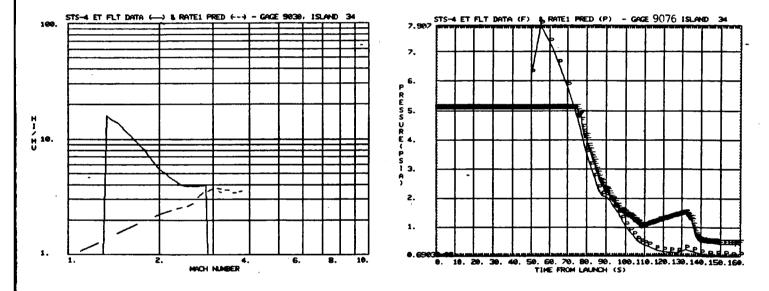




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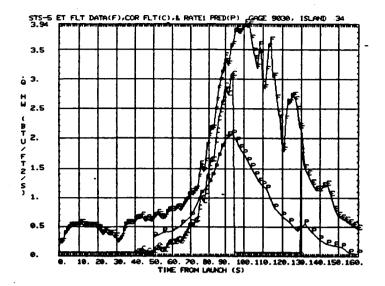
- Bad Pressure Measurements
- Questionable Measurements

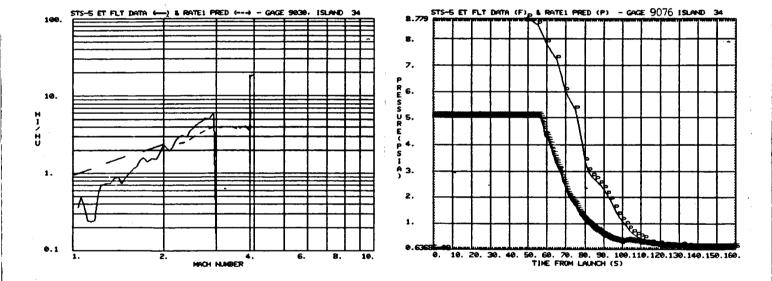




- Plume-Induced Heating was Considered
- Questionable Measurements

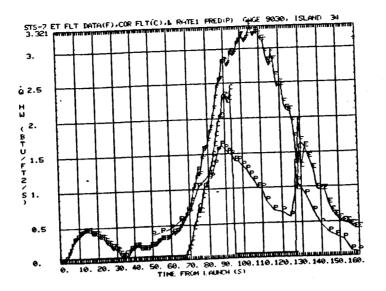
Fig. A.24c Aerothermal Analysis For Gage 9030 in STS-4

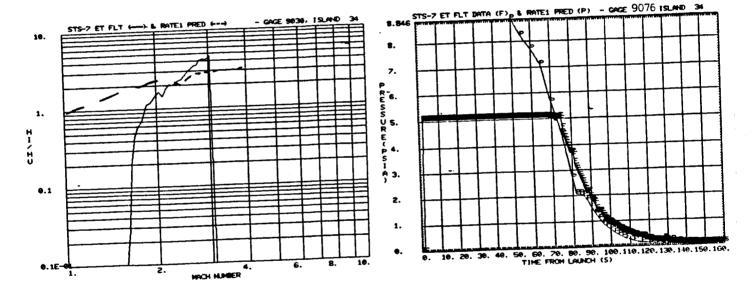




NOTE:

Fig. A.24d Aerothermal Analysis for Gage 9030 in STS-5

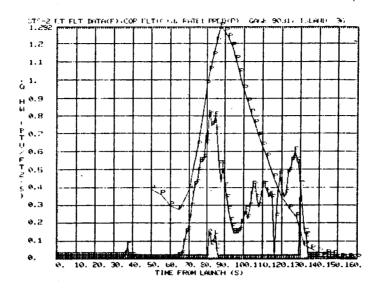


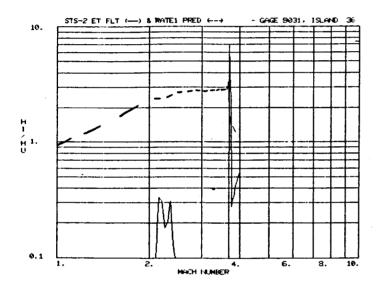


NOTE:
• Plume-Induced Heating was Considered

Fig. A.24e Aerothermal Analysis for Gage 9030 in STS-7

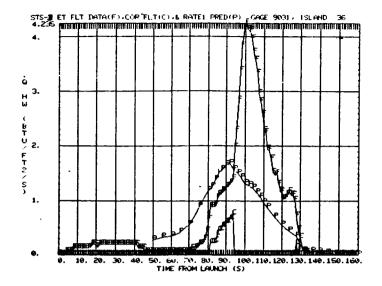
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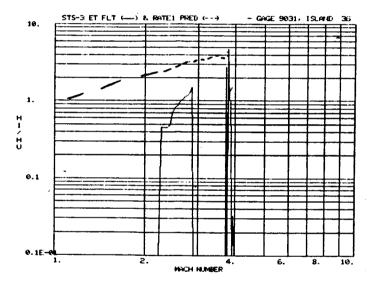




NOTE:

Fig. A.25a Aerothermal Analysis for Gage 9031 in STS-2

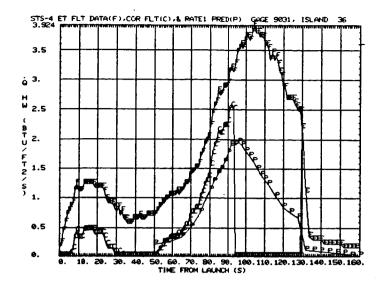


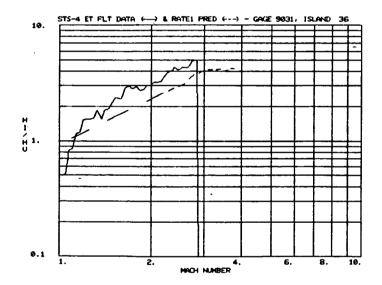


## NOTE:

Fig. A.25b Aerothermal Analysis for Gage 9031 in STS-3

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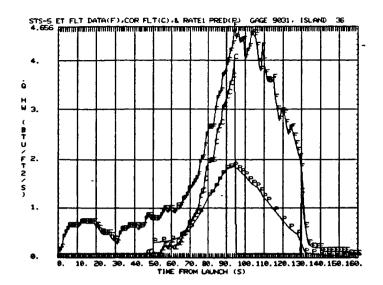


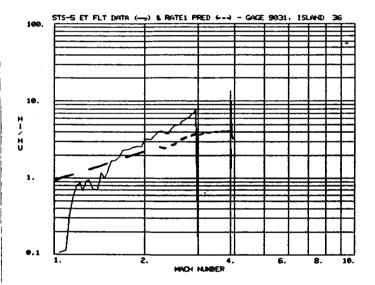


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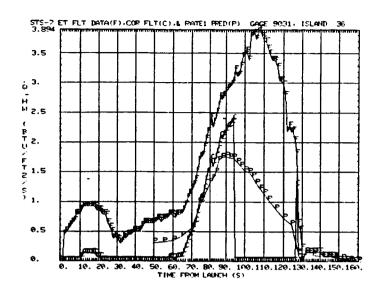
Plume-Induced Heating was Considered

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## NOTE:



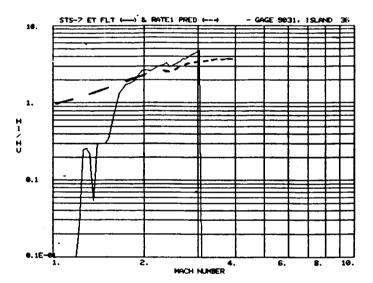
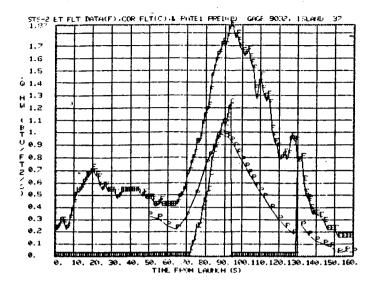
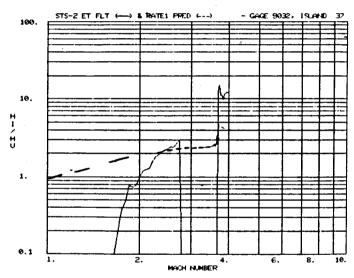


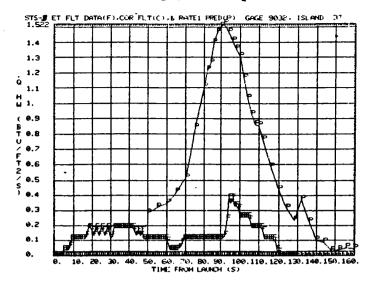
Fig. A.25e Aerothermal Analysis for Gage 9031 in STS-7

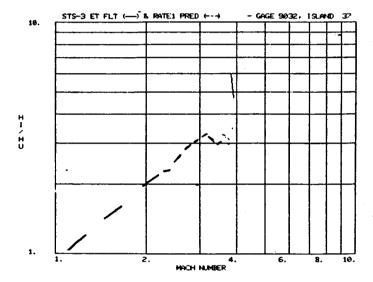




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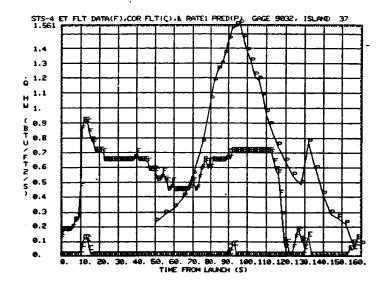
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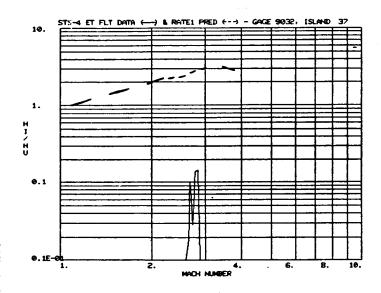




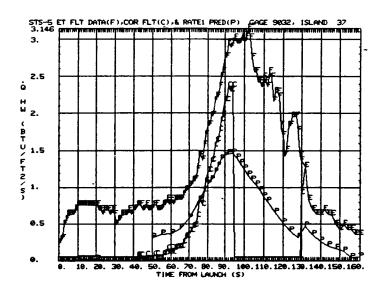
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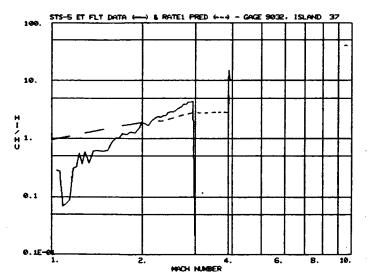
Bad Heating Rate Measurements





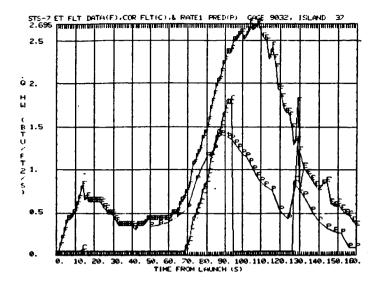
NOTE:
• Questionable Measurements

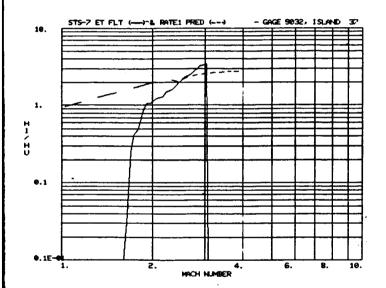




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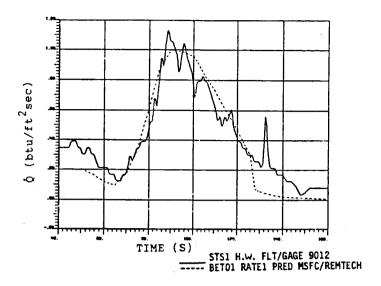
• Plume-Induced Heating was Considered





NOTE:
• Plume-Induced Heating was Considered

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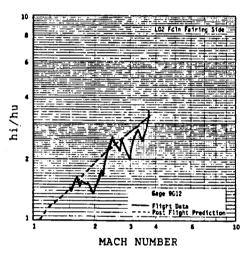
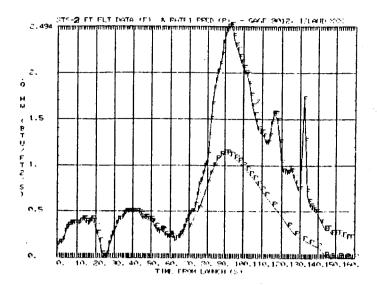


Fig. A.27a Aerothermal Analysis for Gage 9012 in STS-1



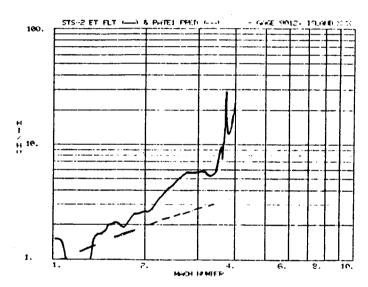
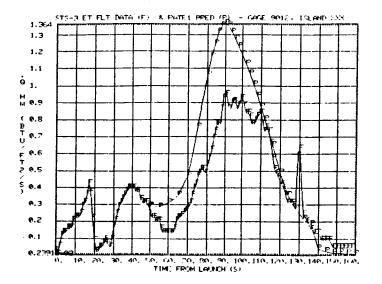


Fig. A.27b Aerothermal Analysis for Gage 9012 in STS-2



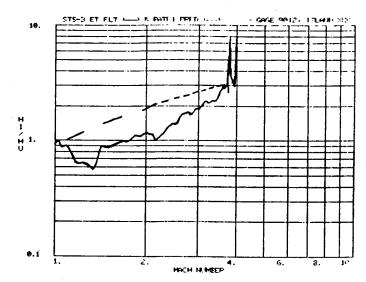
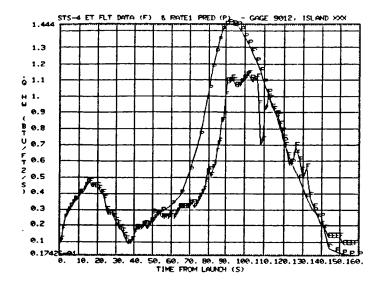


Fig. A.27c Aerothermal Analysis for Gage 9012 in STS-3



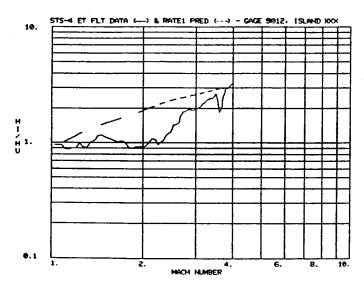
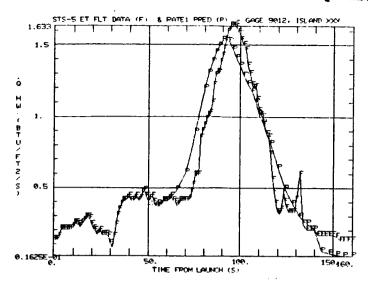


Fig. A.27d Aerothermal Analysis for Gage 9012 in STS-4



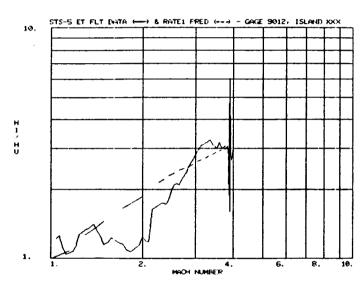
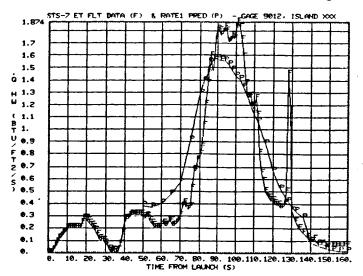


Fig. A.27e Aerothermal Analysis for Gage 9012 in STS-5



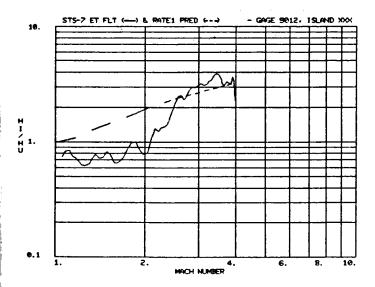
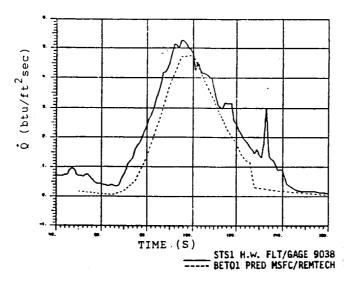


Fig. A.27f Aerothermal Analysis for Gage 9012 in STS-7



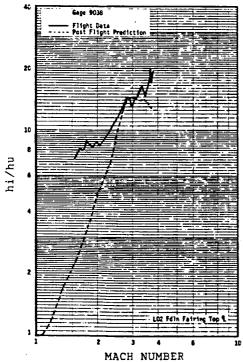
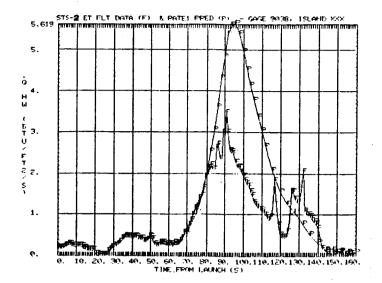


Fig. A.28a Aerothermal Analysis for Gage 9038 in STS-1



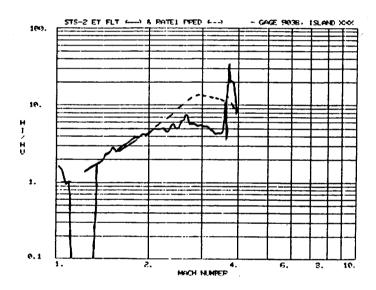
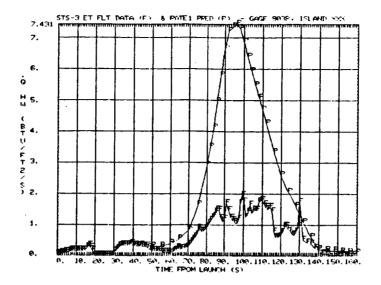


Fig. A.28b Aerothermal Analysis for GAge 9038 in STS-2



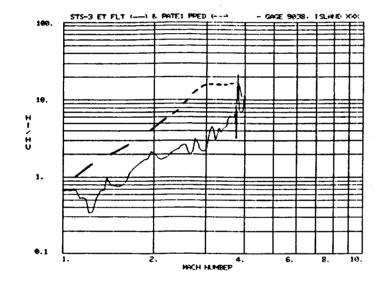
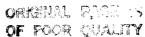
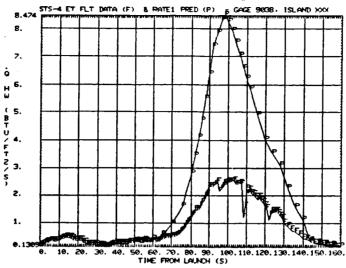


Fig. A.28c Aerothermal Analysis for Gage 9038 in STS-3





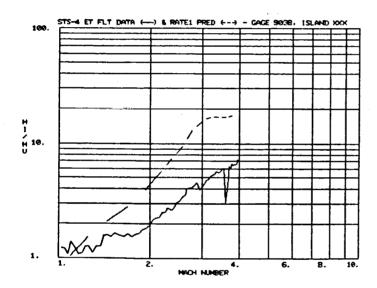
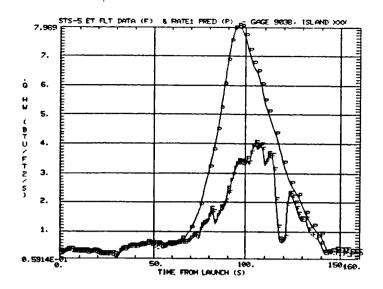


Fig. A.28d Aerothermal Analysis for Gage 9038 in STS-4



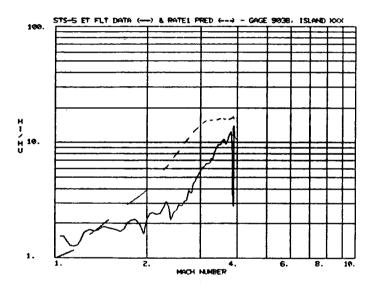
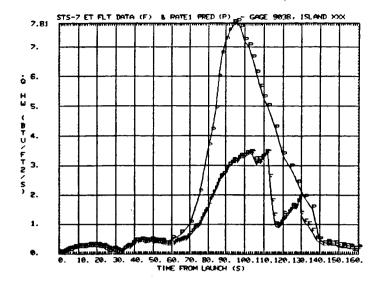


Fig. Au28e Aerothermal Analysis for Gage 9038 in STS-5

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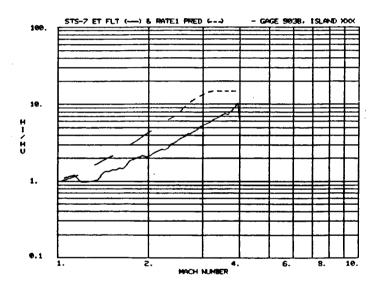
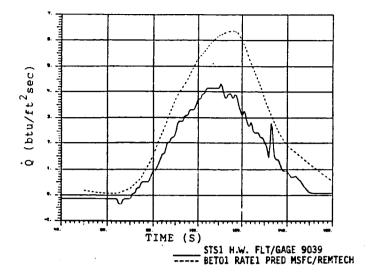


Fig. A.28f Aerothermal Analysis for Gage 9038 in STS-7



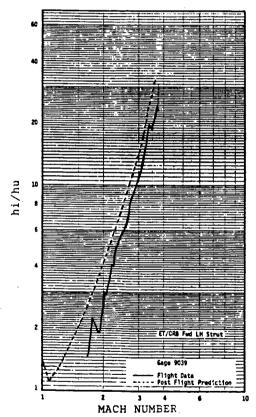
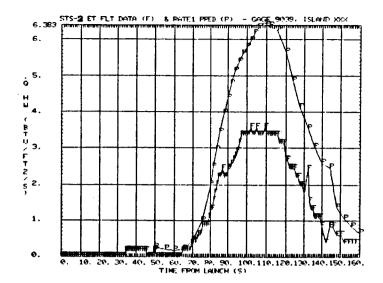


Fig. A.29a Aerothermal Analysis for Gage 9039 in STS-1



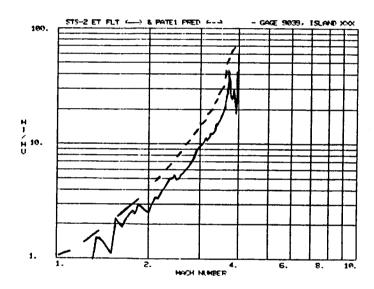
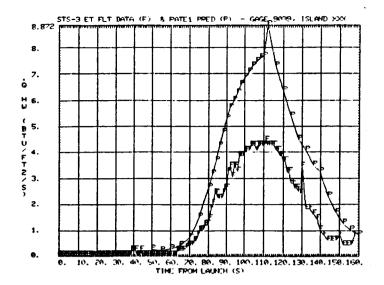


Fig. A.29b Aerothermal Analysis for Gage 9039 in STS-2



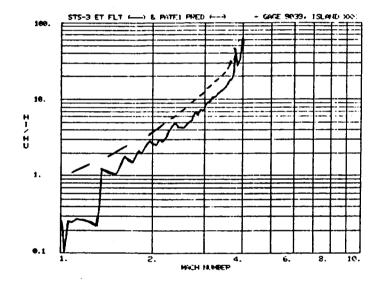
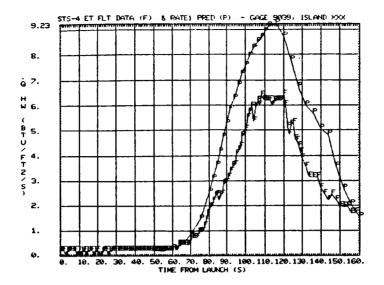


Fig. A.29c Aerothermal Analysis for Gage 9039 in STS-3

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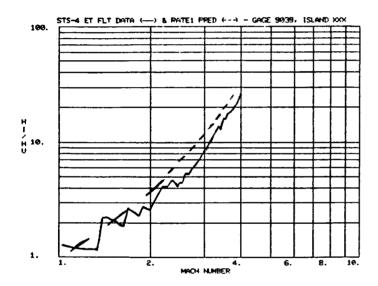
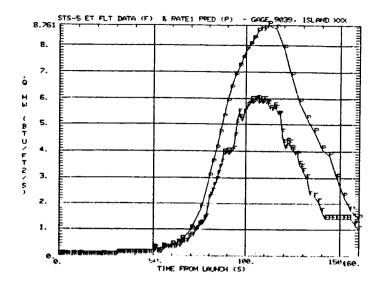


Fig. A.29d Aerothermal Analysis for Gage 9039 in STS-4



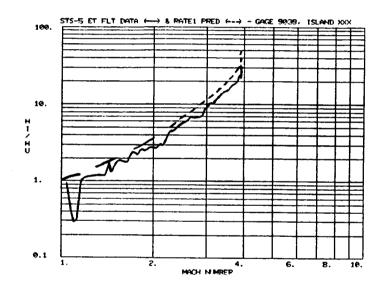
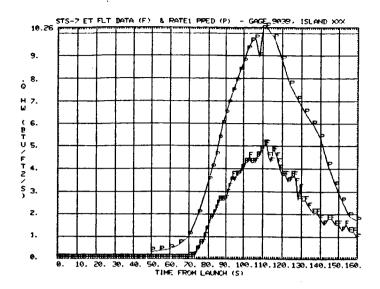


Fig. A.29e Aerothermal Analysis for Gage 9039 in STS-5



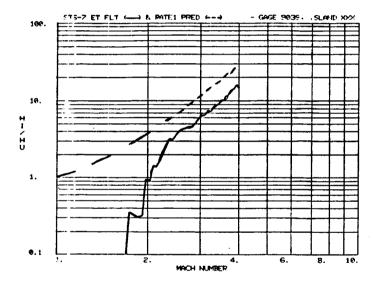
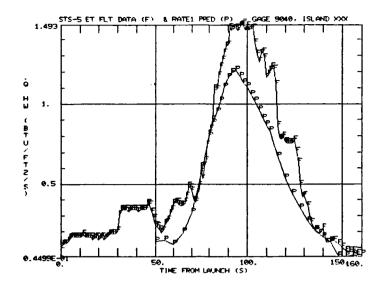


Fig. A.29f Aerothermal. Analysis for Gage 9039 in STS-7



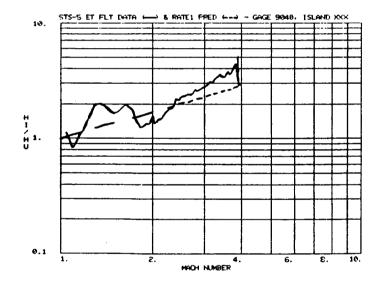
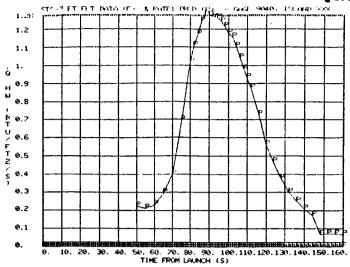
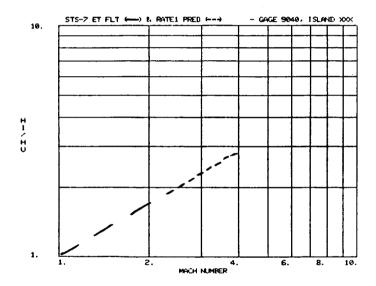


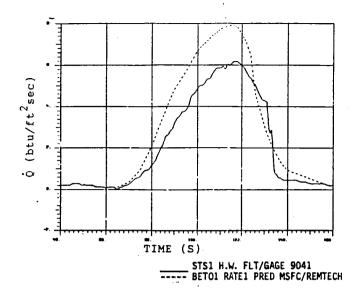
Fig. A.30a Aerothermal Analysis for Gage 9040 in STS-5





NOTE:
• Bad Heating Rate Measurements

Fig. A.30b Aerothermal Analysis for Gage 9040 in STS-7



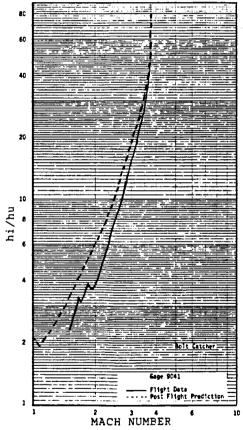
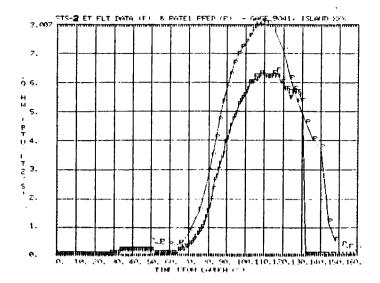


Fig. A.31a Aerothermal Analysis for Gage 9041 in STS-1



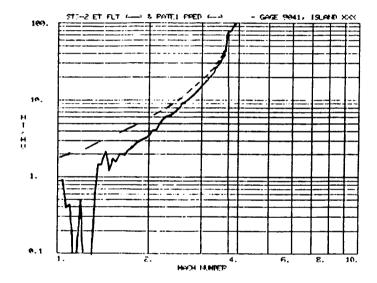
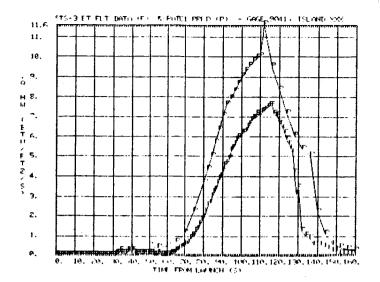


Fig. A.31b Aerothermal Analysis for Gage 9041 in STS-2



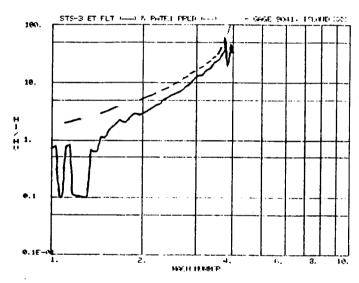
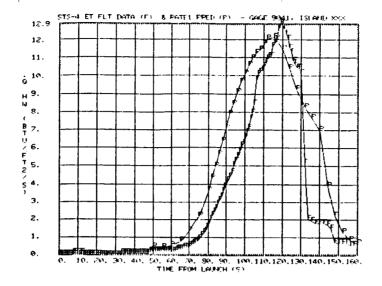


Fig. A.31c Aerothermal Analysis for Gage 9041 in STS-3



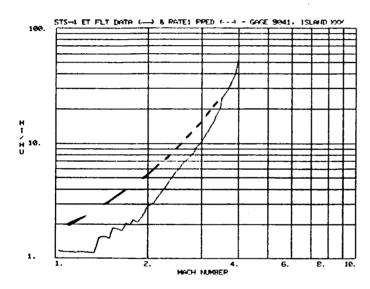
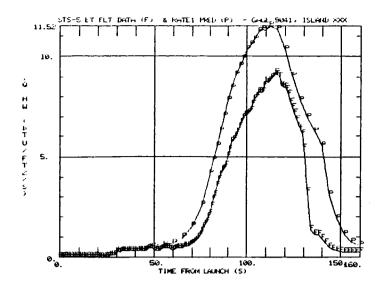


Fig. A.31d Aerothermal Analysis for Gage 9041 in STS-4



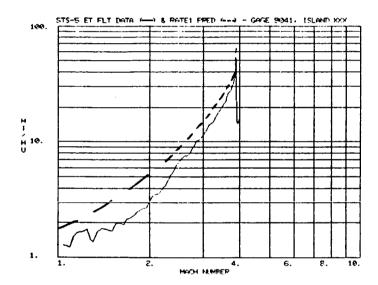
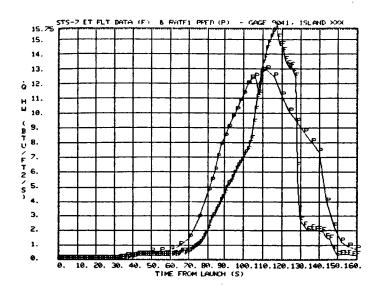


Fig. A.31e Aerothermal Analysis for Gage 9041 in STS-5



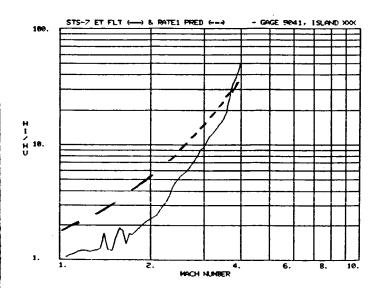
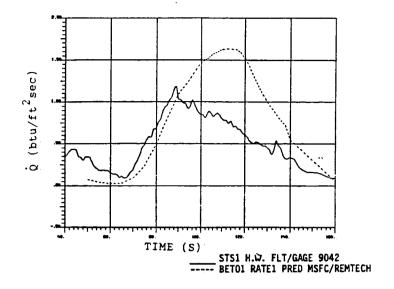
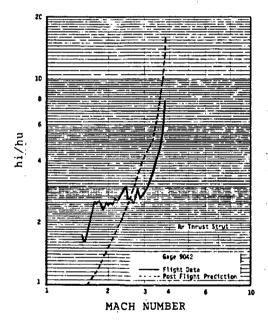


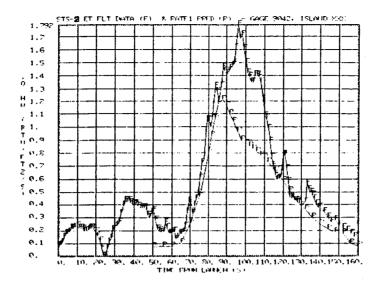
Fig. A.31f Aerothermal Analysis for GAge 9041 in STS-7





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Fig. A.32a Aerothermal Analysis for Gage 9042 in STS-1



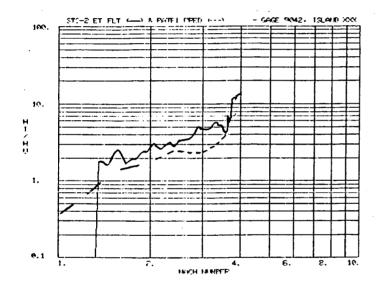
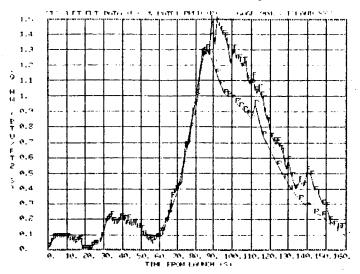


Fig. A.32b Aerothermal Analysis for Gage 9042 in STS-2



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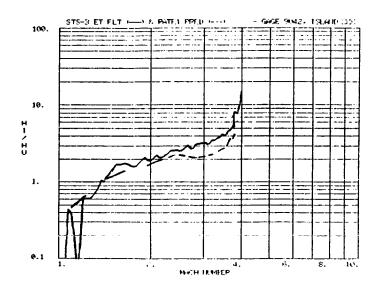
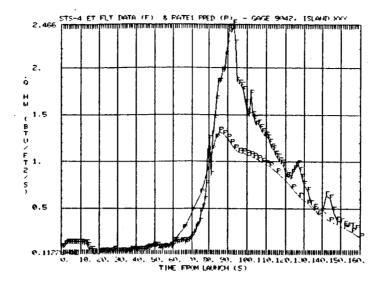


Fig. A.32c Aerothermal Analysis for Gage 9042 in STS-3



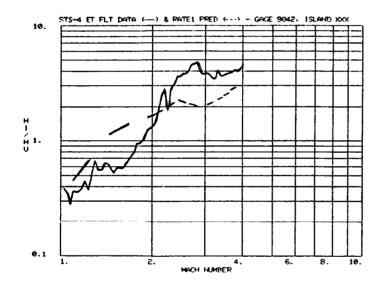
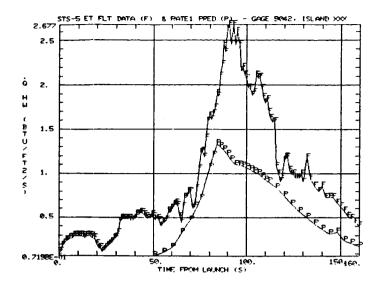


Fig. A.32d Aerothermal Analysis for Gage 9042 in STS-4



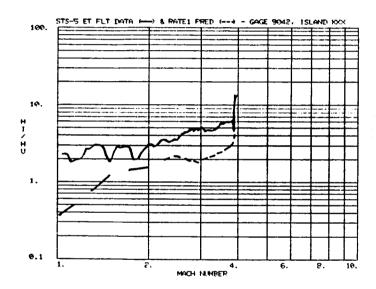
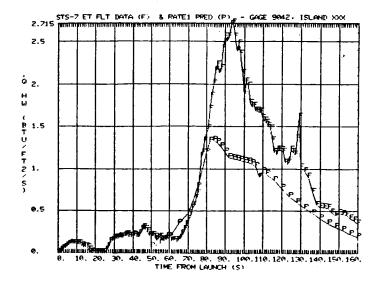


Fig. A.32e Aerothermal Analysis for Gage 9042 in STS-5



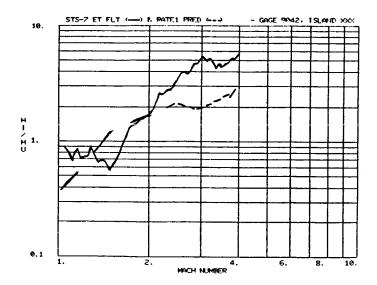
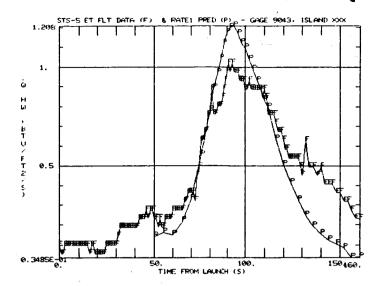


Fig. A.32f Aerothermal Analysis for Gage 9042 in STS-7



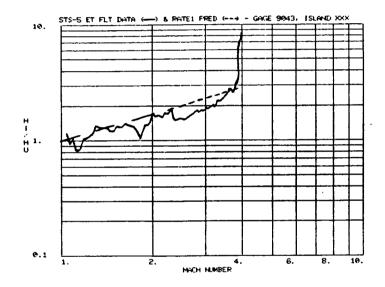
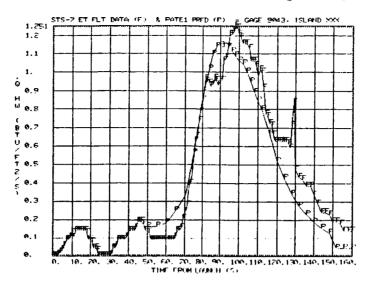


Fig. A.33a Aerothermal Analysis for Gage 9043 in STS-5



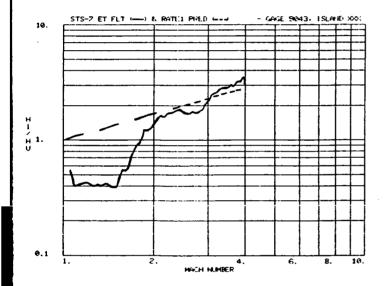
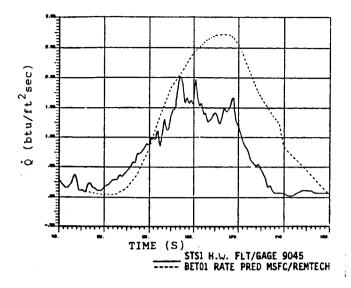


Fig. A.33b Aerothermal Analysis for Gage 9043 in STS-7



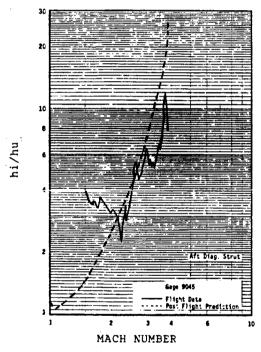
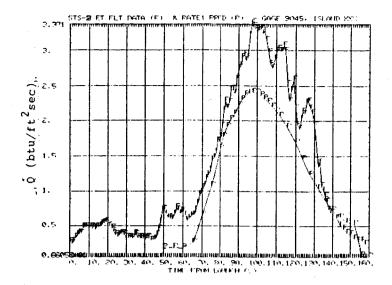


Fig. A.34a Aerothermal Analysis for Gage 9045 in STS-1



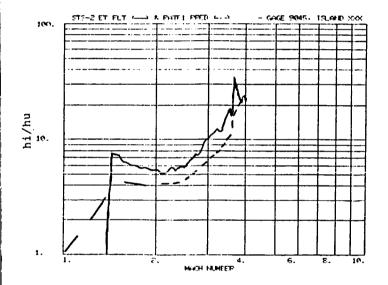
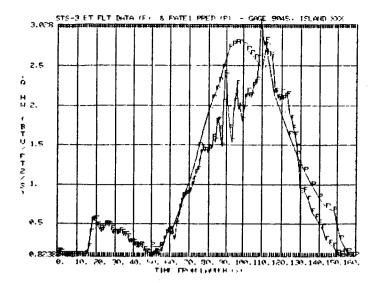


Fig. A.34b Aerothermal Analysis for Gage 9045 in STS-2



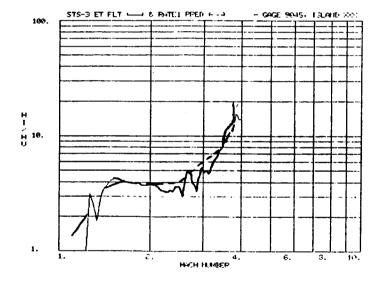
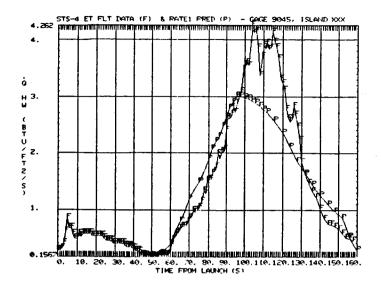


Fig. A.34c Aerothermal Analysis for Gage 9045 in STS-3



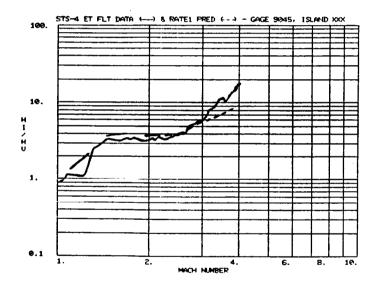
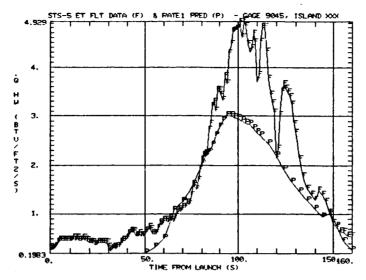


Fig. A.34d Aerothermal Analysis for Gage 9045 in STS-4



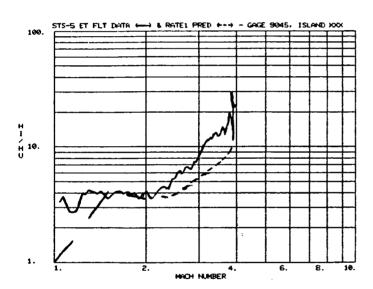
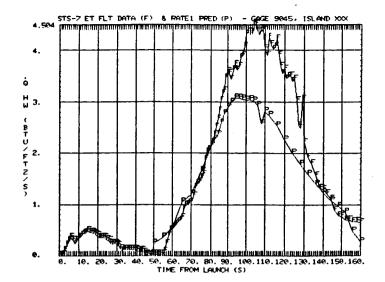


Fig. A.34e Aerothermal Analysis for Gage 9045 in STS-5



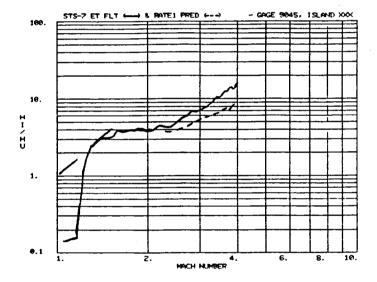
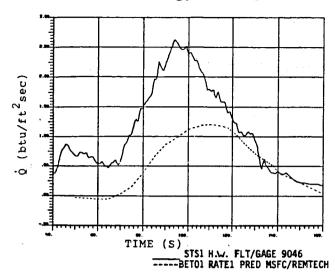
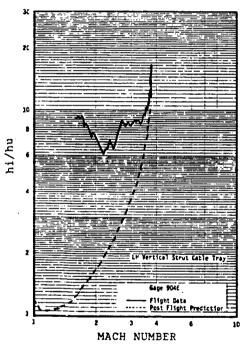


Fig. A.34f Aerothermal Analysis for Gage 9045 in STS-7







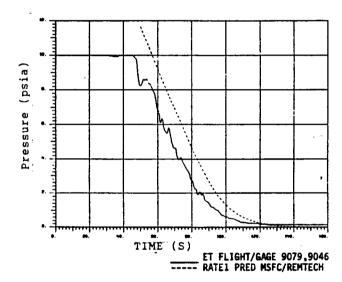
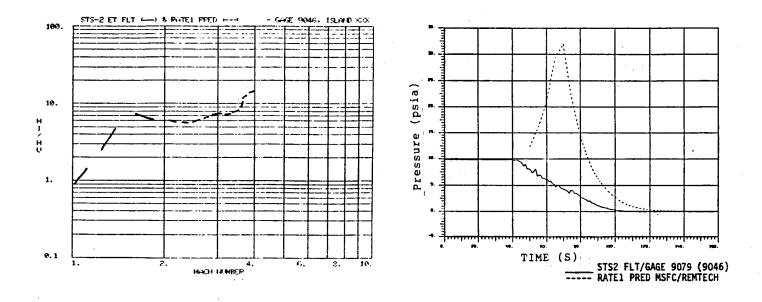


Fig. A.35a Aerothermal Analysis for Gage 9046 in STS-1

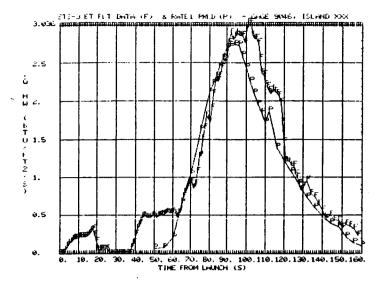
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NOTE:
• Bad Heating Rate Measurements

Fig. A.35b Aerothermal Analysis for Gage 9046 in STS-2

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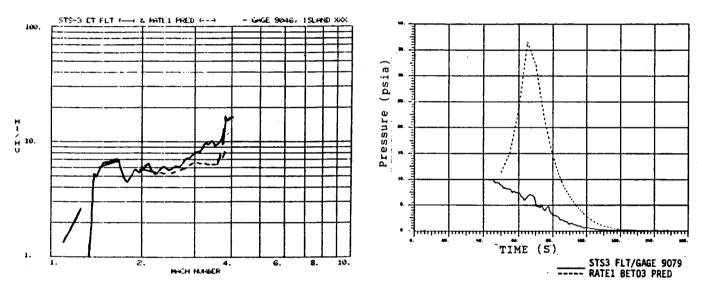
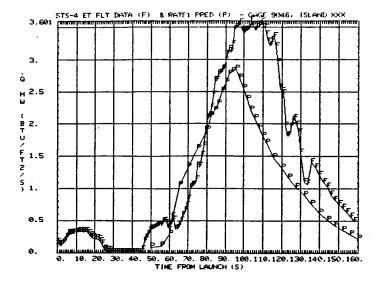
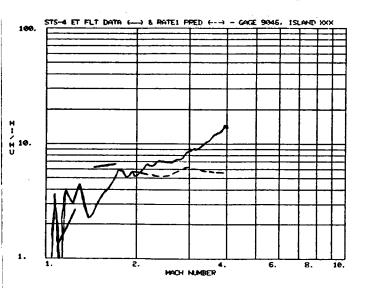


Fig. A.35c Aeroheating Analysis for Gage 9046 in STS-3





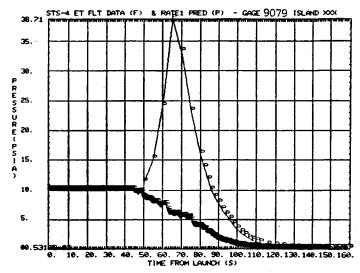
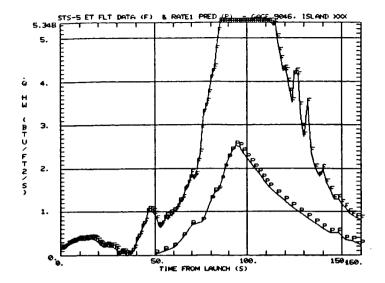


Fig. A.35d Aerothermal Analysis for Gage 9046 in STS-4



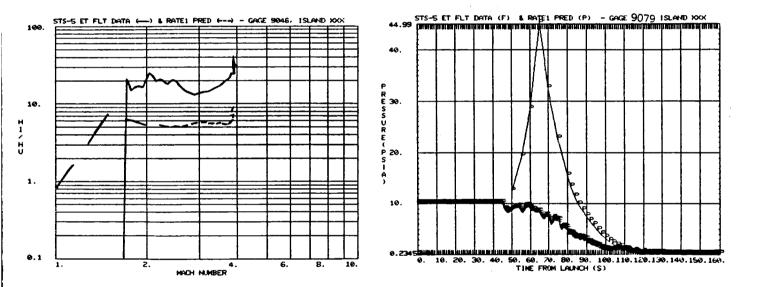
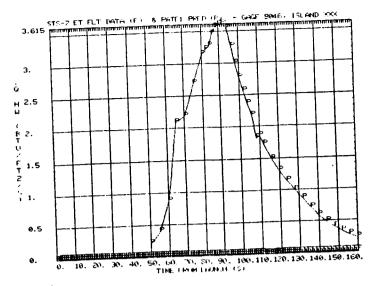


Fig. A.35e Aerothermal Analysis for Gage 9046 in STS-5



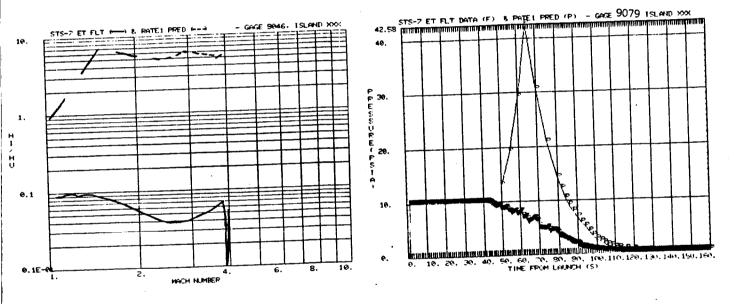
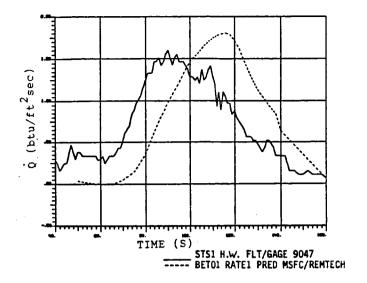
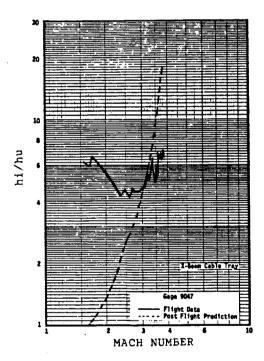


Fig. A.35f Aerothermal Analysis for Gage 9046 in STS-7





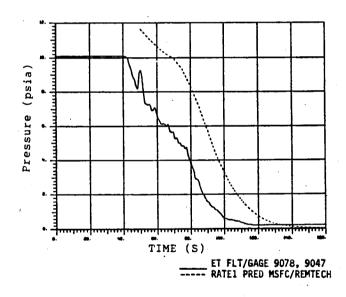
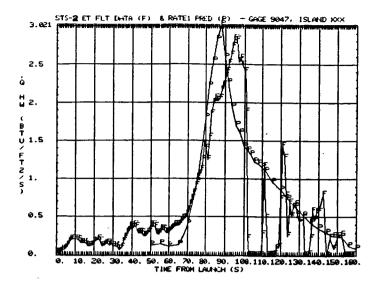


Fig. A.36a Aerothermal Analysis for Gage 9047 in STS-1



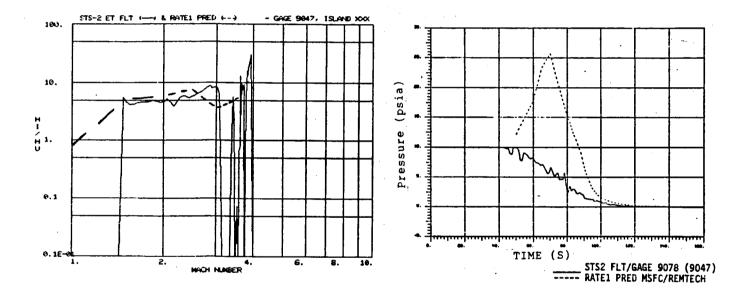
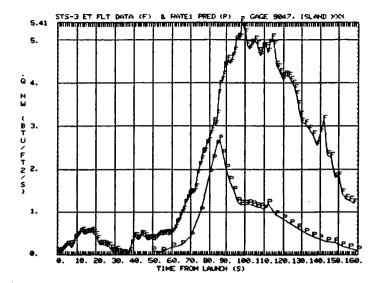


Fig. A.36b Aerothermal Analysis for Gage 9047 in STS-2



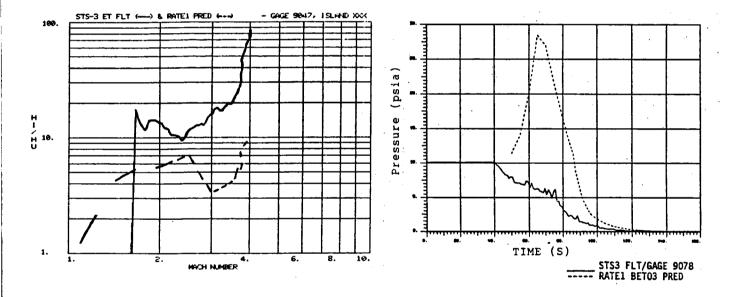
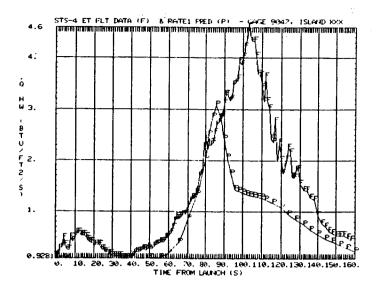


Fig. A.36c Aerothermal Analysis for Gage 9047 in STS-3



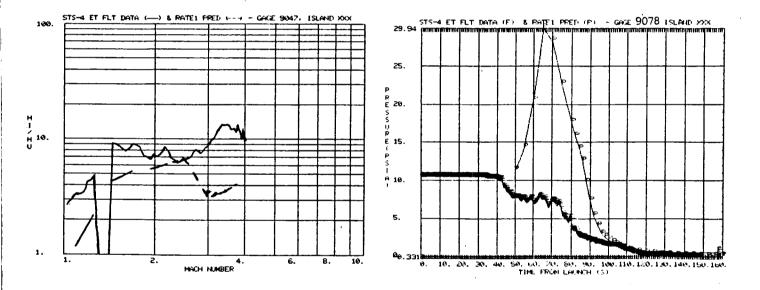


Fig. A.36d Aerothermal Analysis for Gage 9047 in STS-4

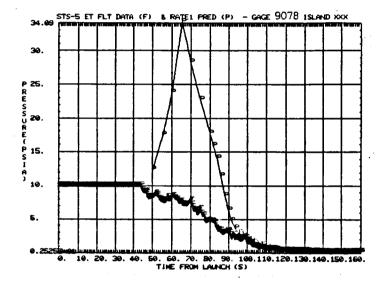
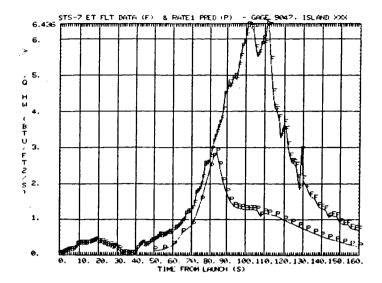


Fig. A.36e Aerothermal Analysis for Gage 9047 in STS-5



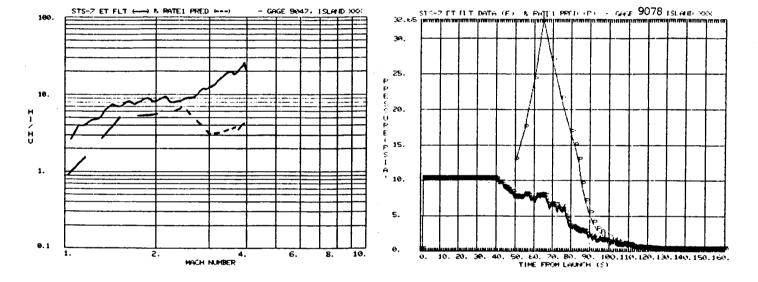


Fig. A.36f Aerothermal Analysis for Gage 9047 in STS-7

## APPENDIX B

FLIGHT-DERIVED hi/hu VS.  $M_{\infty}$  PLOTS

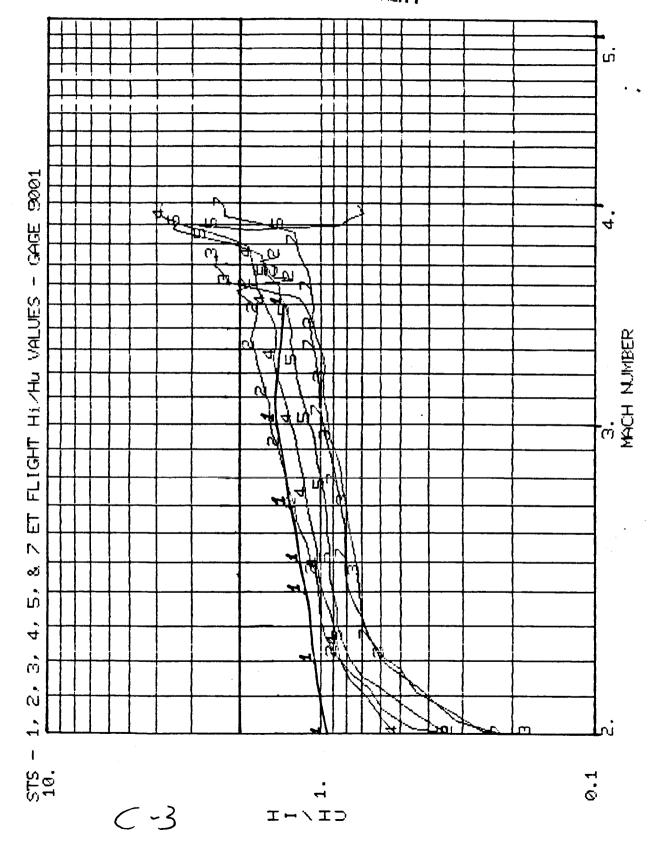
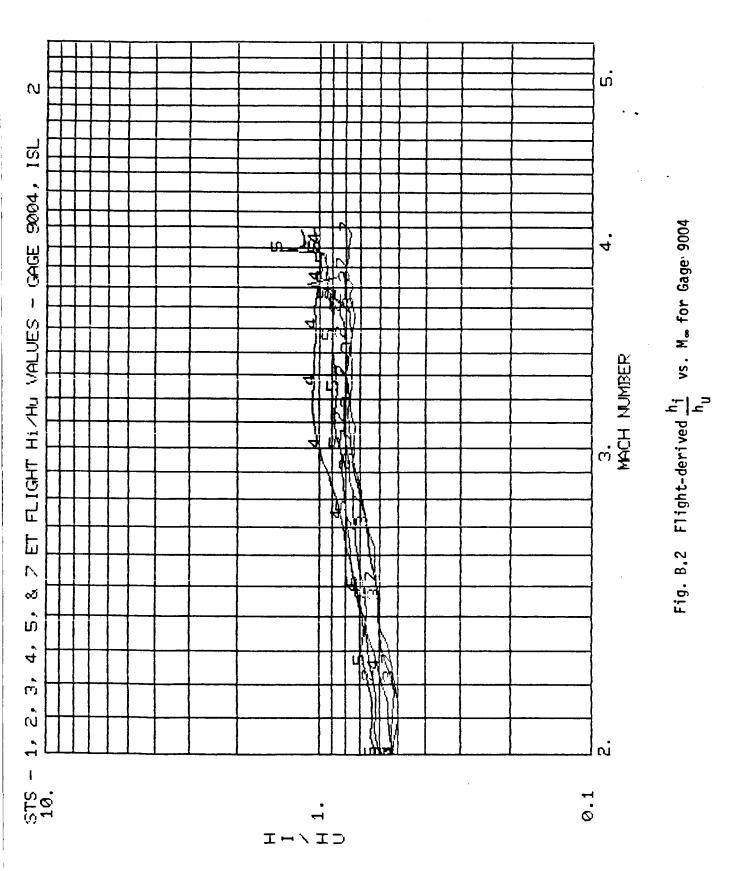
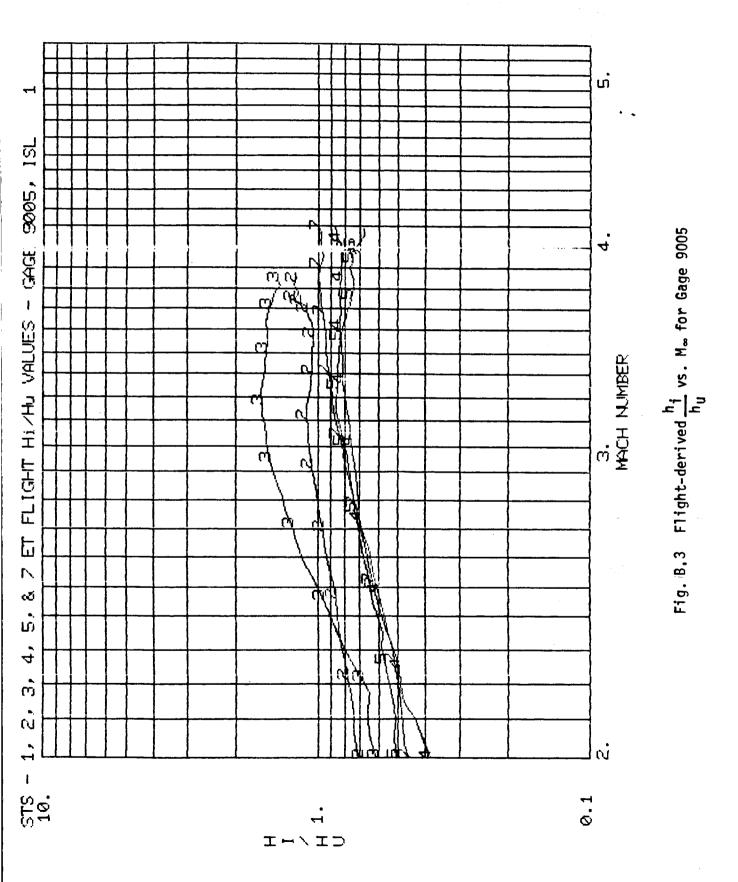


Fig. B.1 Flight-derived hi vs. M. for Gage 9001 hu



. .



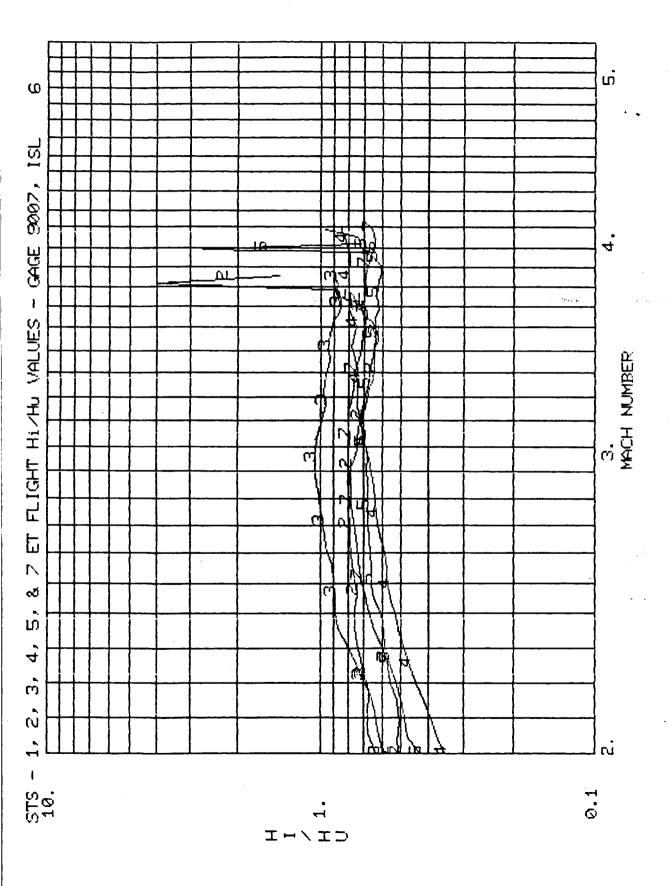
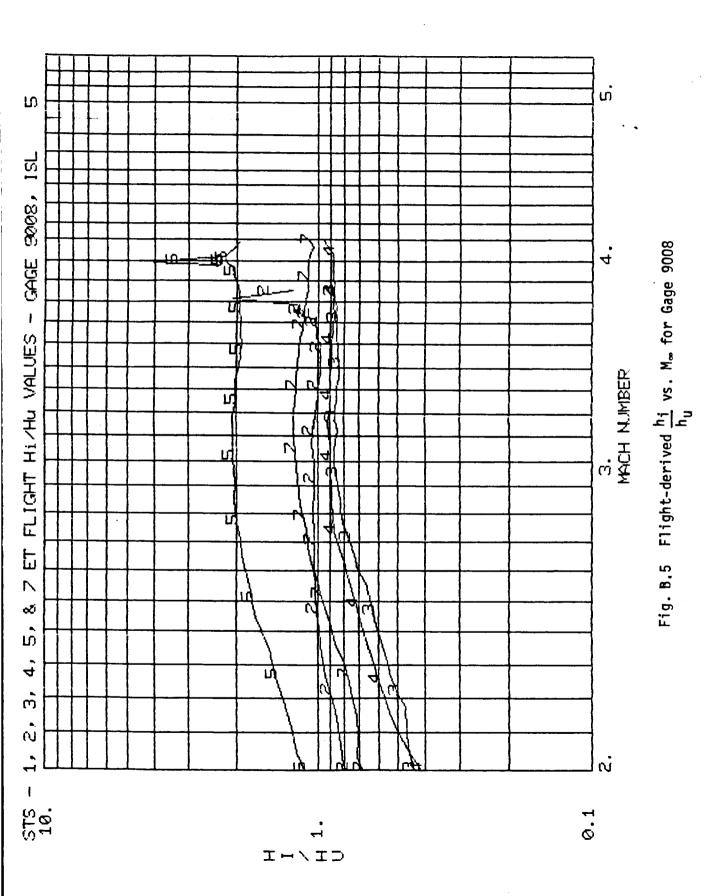


Fig. B.4 Flight-derived hi vs. M. for Gage 9007



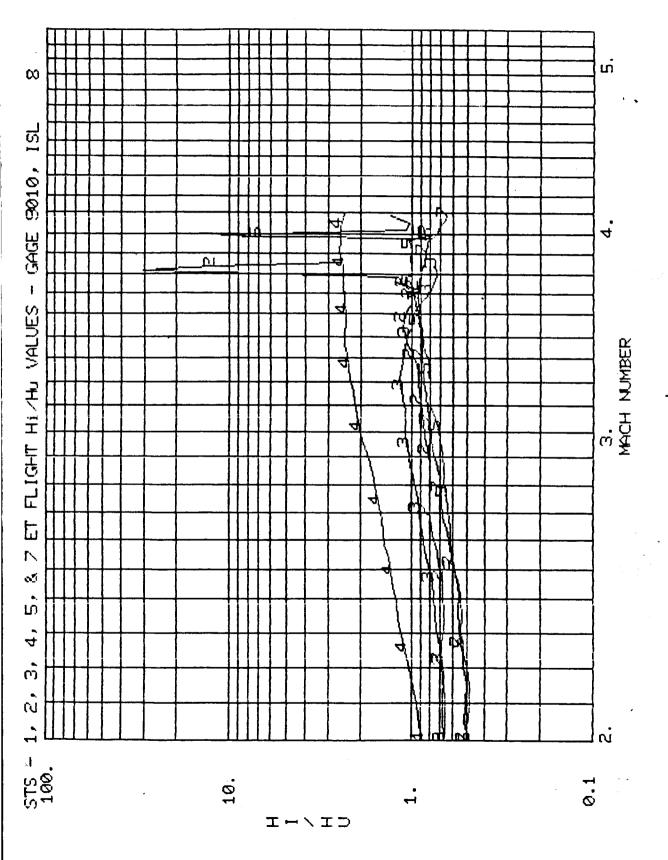


Fig. B.6 Flight-derived hi vs. M. for Gage 9010

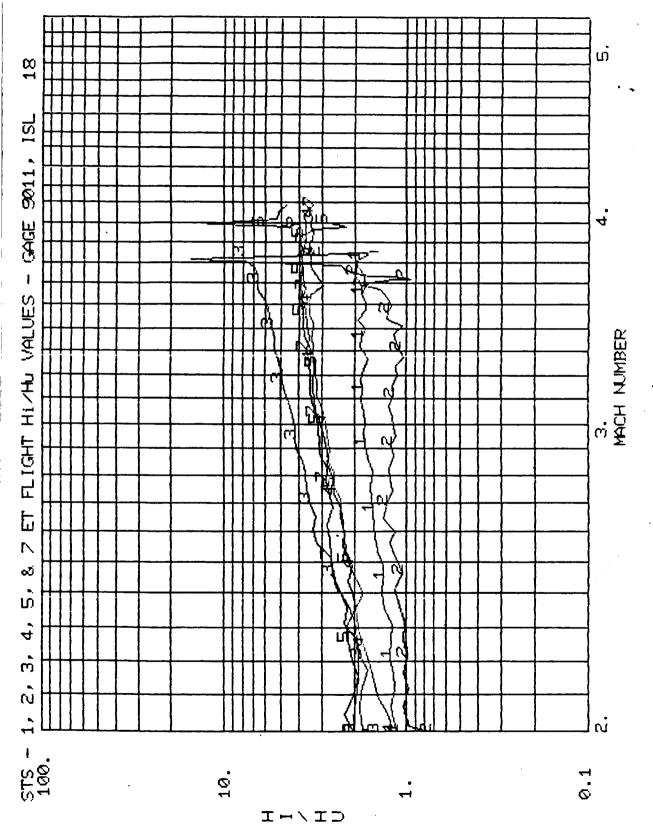
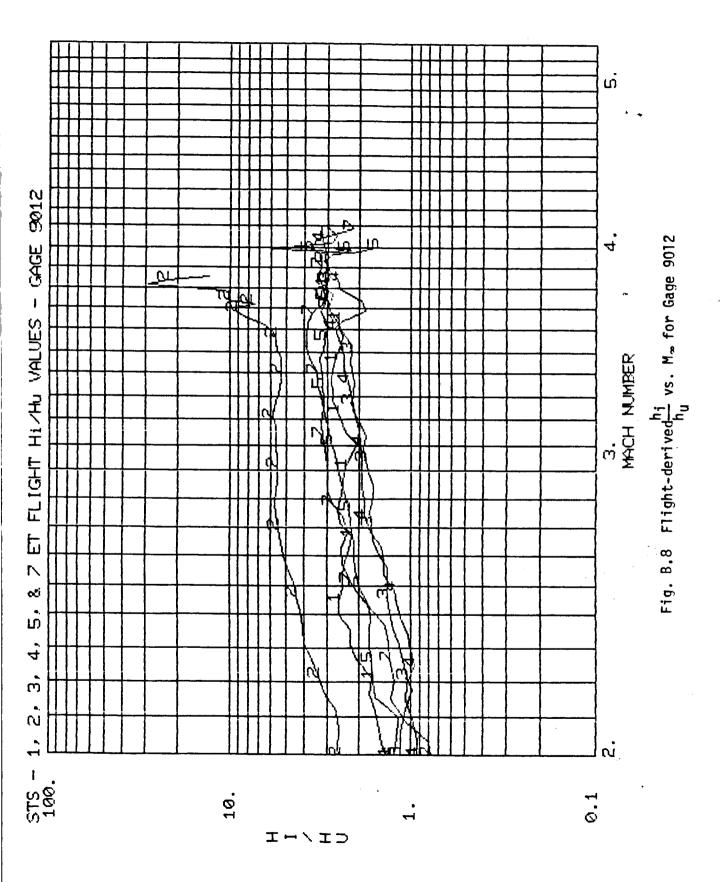
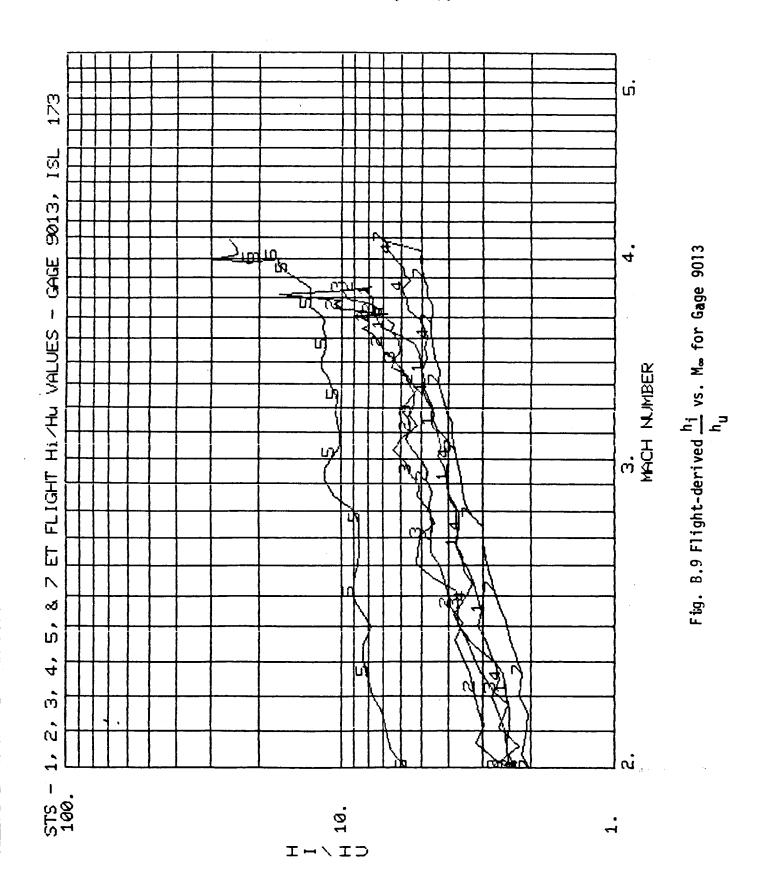
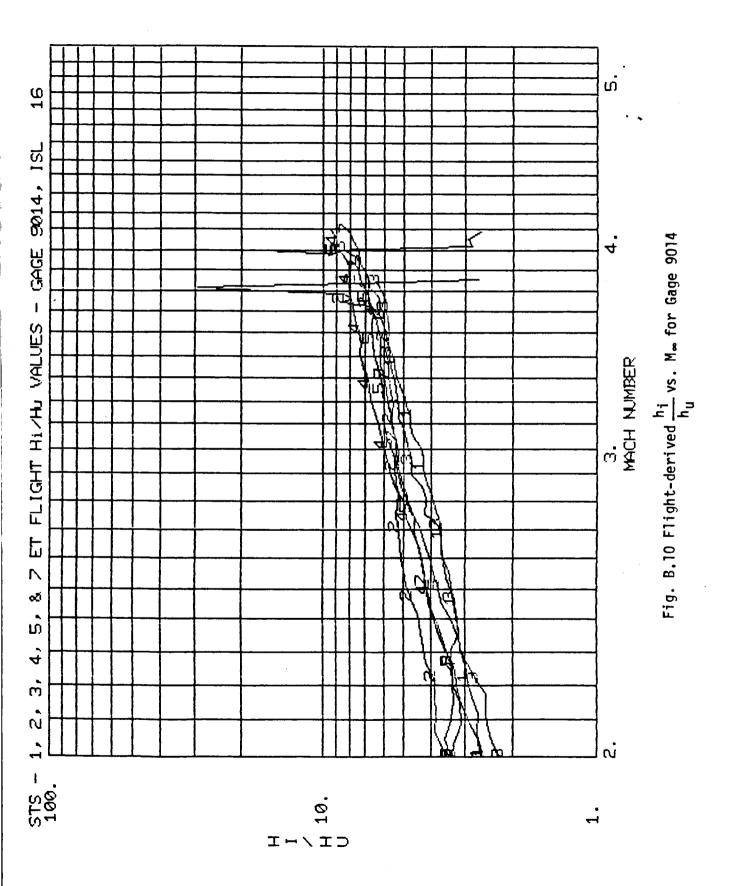
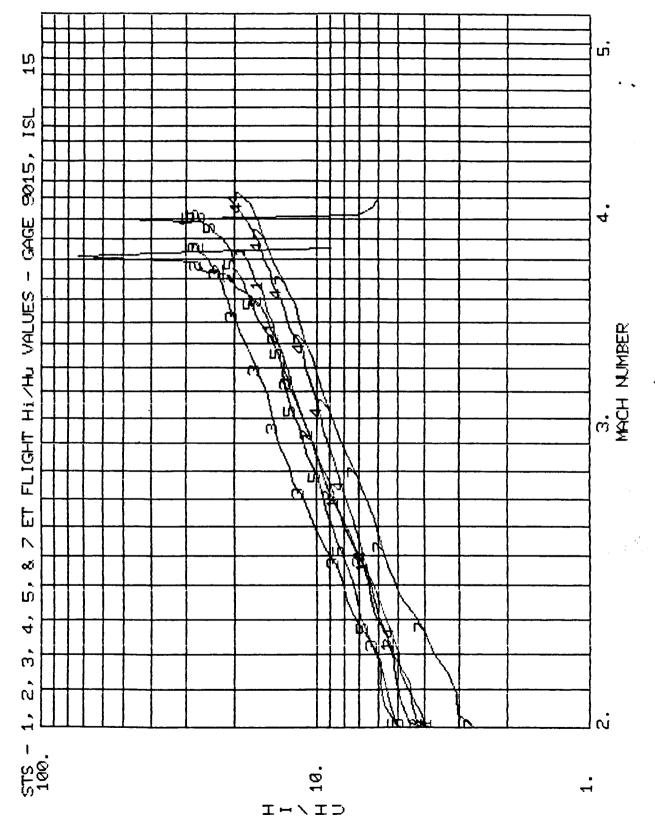


Fig. B.7 Flight-derived hi vs. M. for Gage 9011

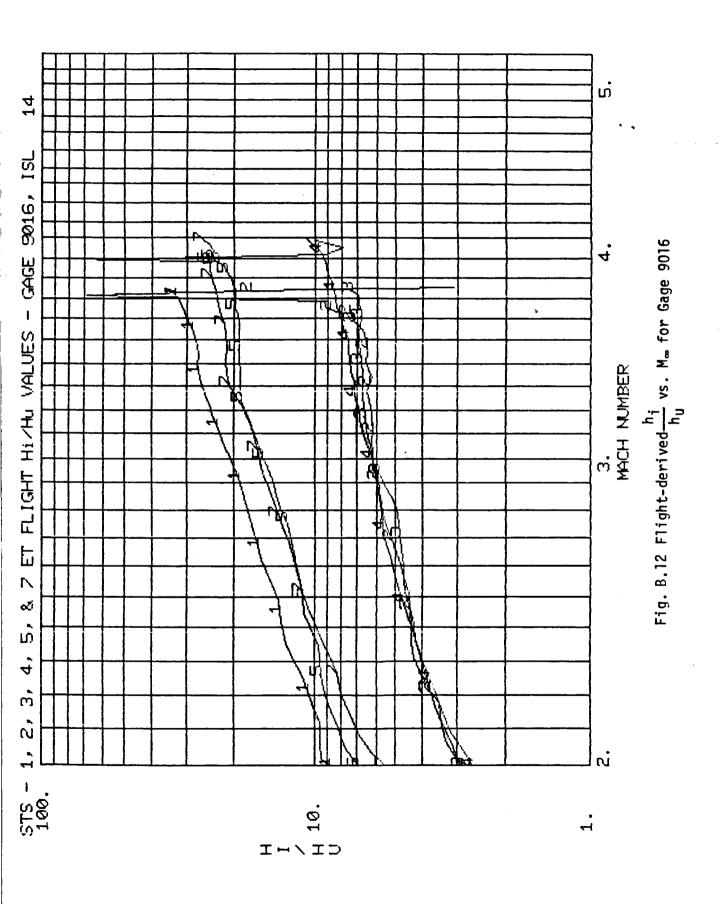


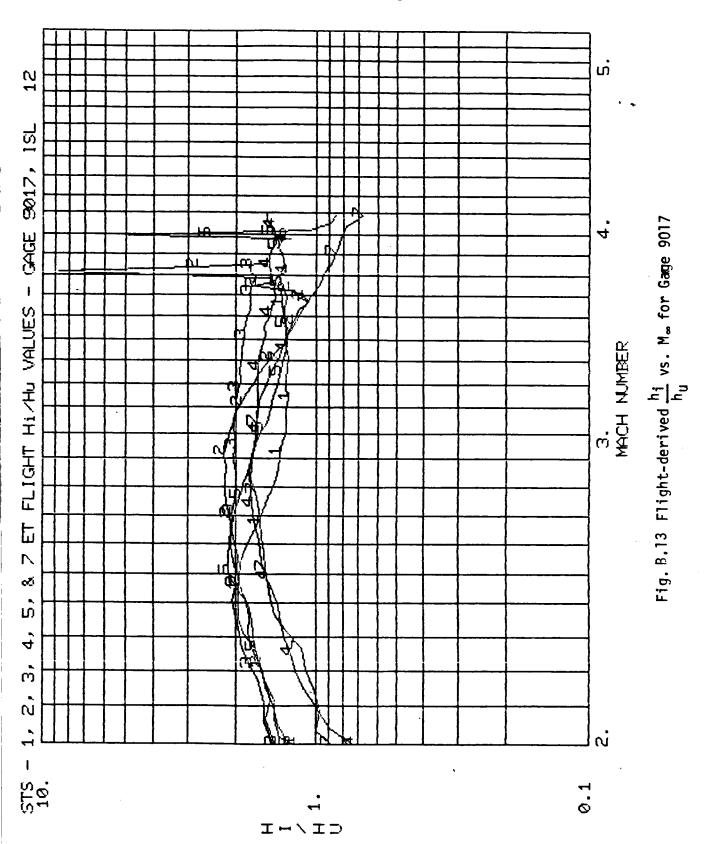


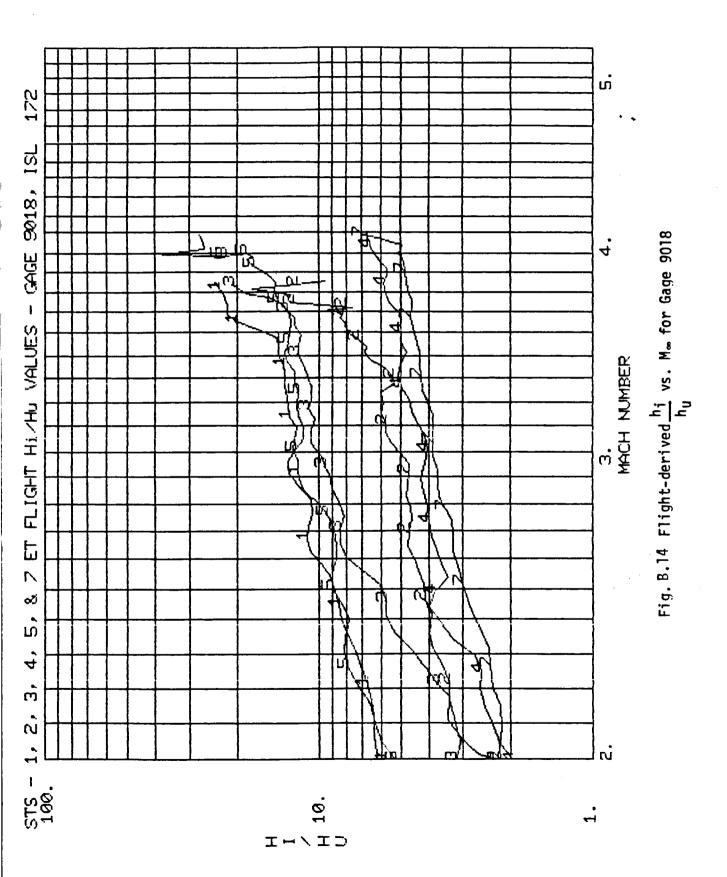


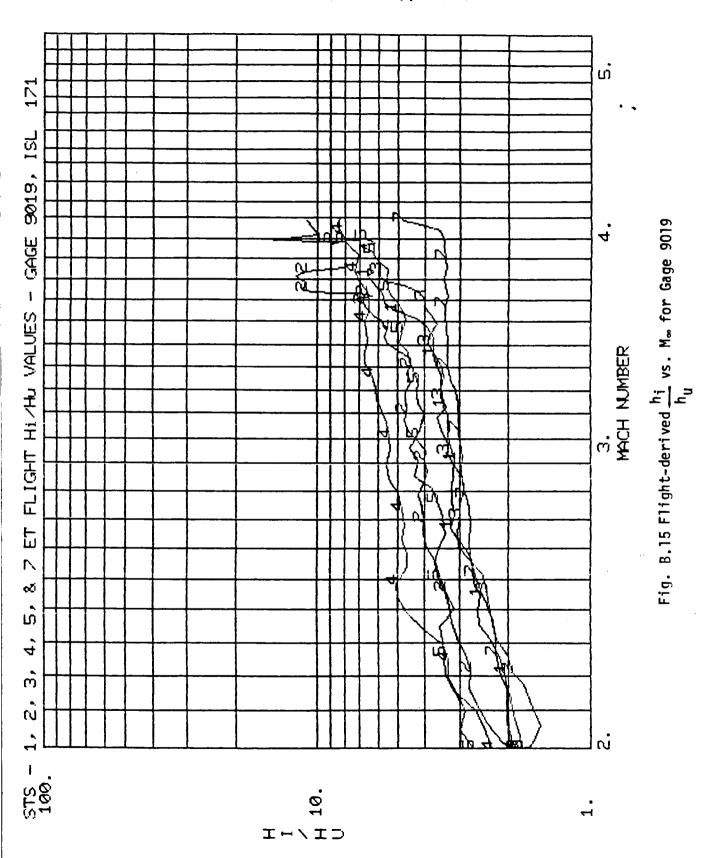


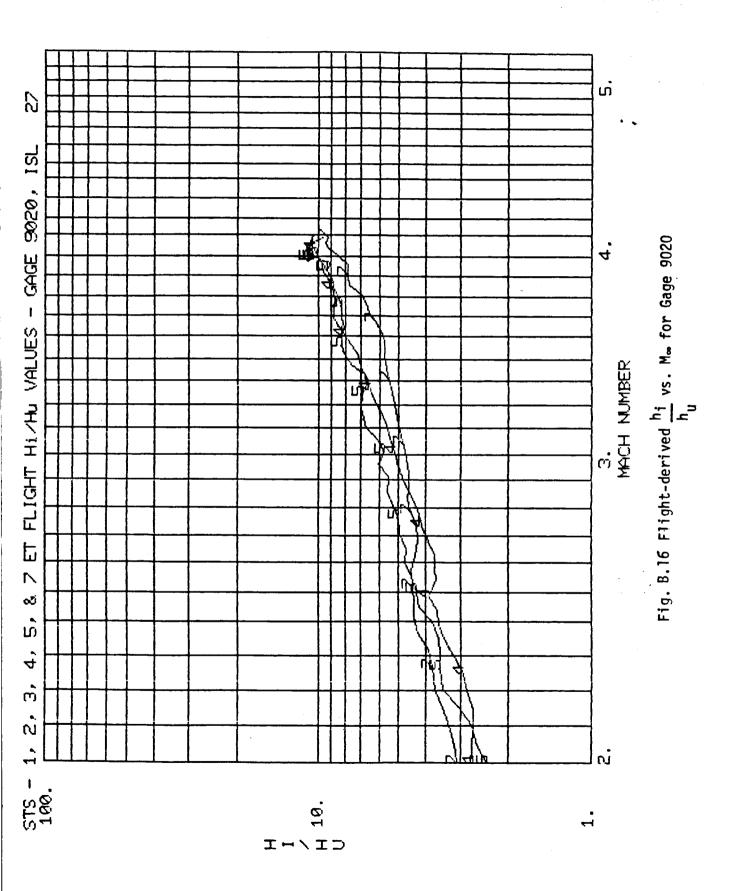
hi Fig. B.II Flight-derived hi hu vs. M. for Gage 9015

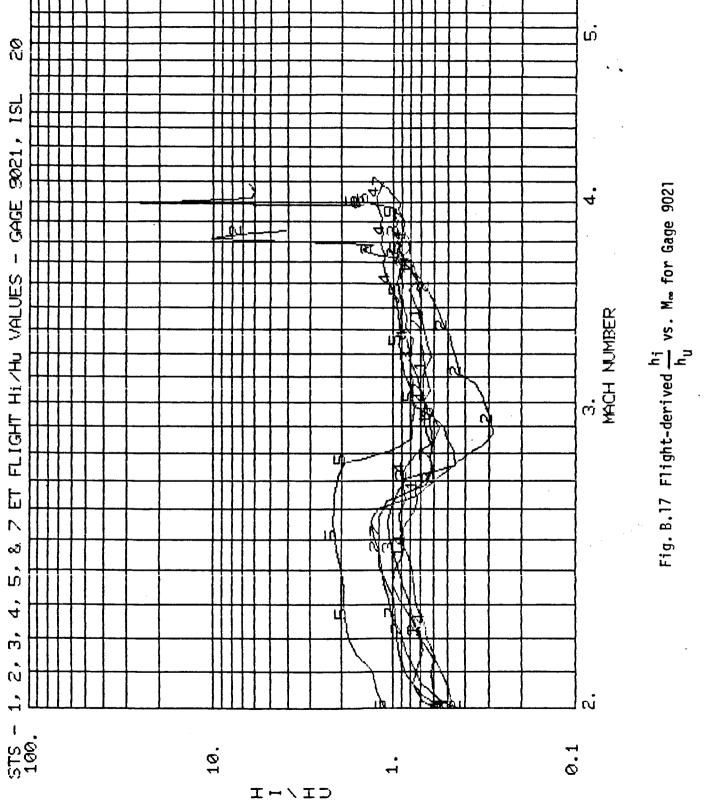












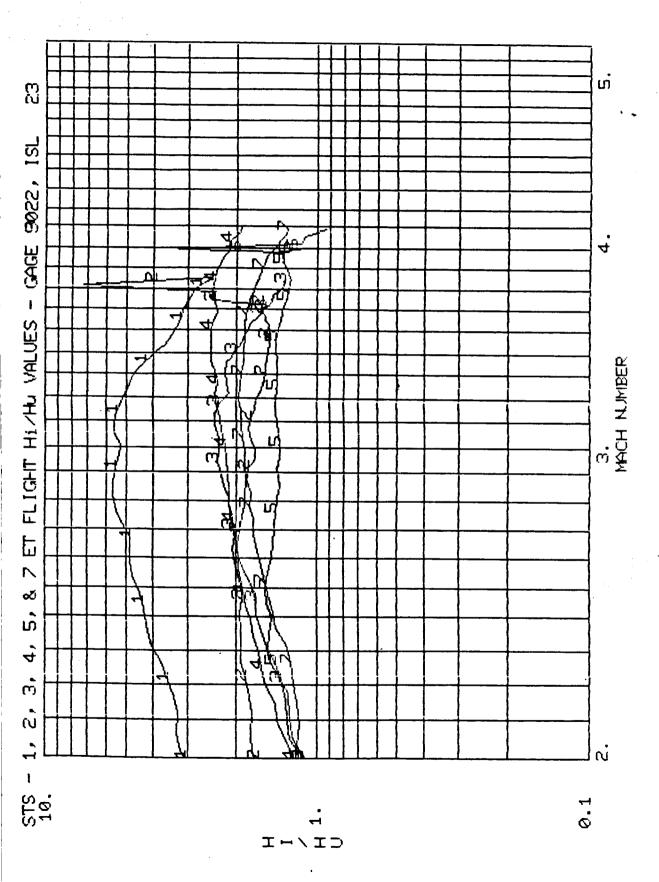


Fig. B.18 Flight-derived h<sub>i</sub>/h<sub>u</sub> vs. M∞ for Gaqe 9022

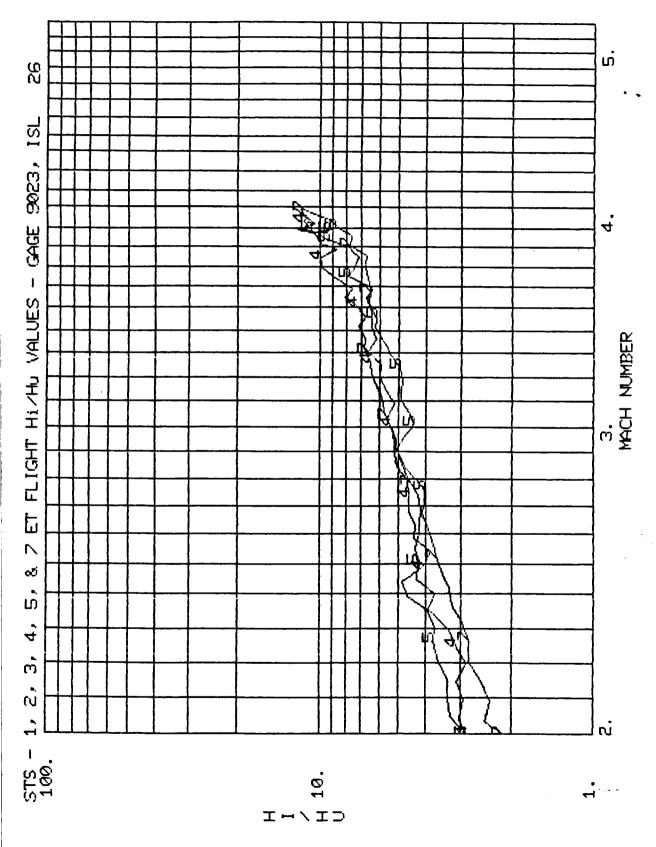


Fig. B.19 Flight-derived h<sub>i</sub>/h<sub>u</sub> vs. M. for Gage 9023

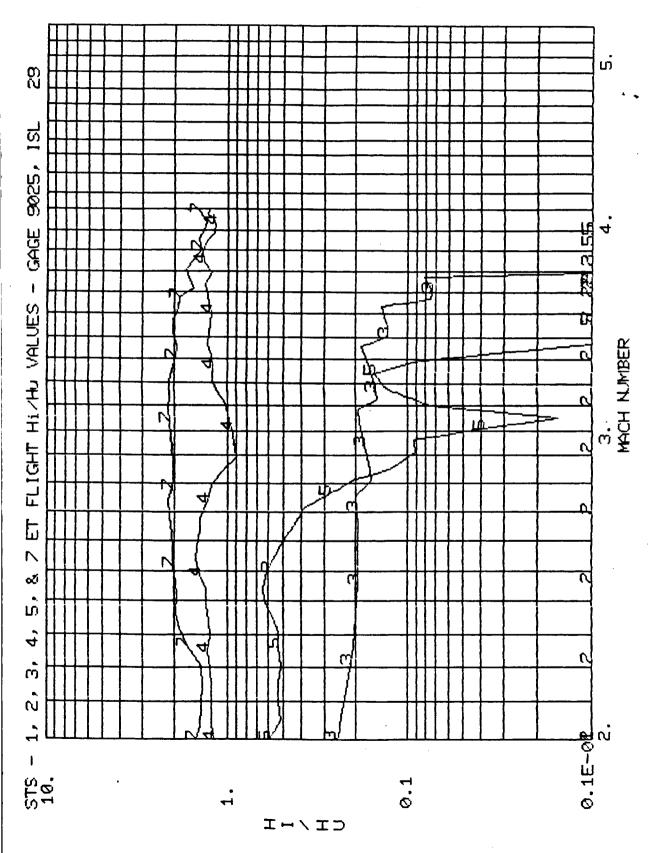


Fig. B.20 Flight-derived h<sub>i</sub>/h<sub>u</sub> vs. M<sub>∞</sub> for Gage 9025

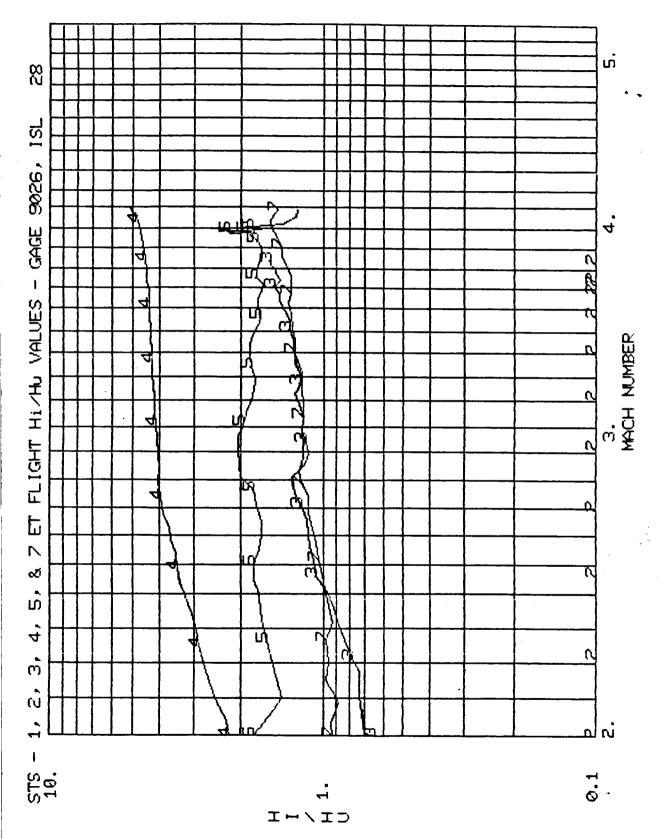


Fig. B.21 Flight-derived h<sub>i</sub>/h<sub>u</sub> vs. M∞ for Gage 9026

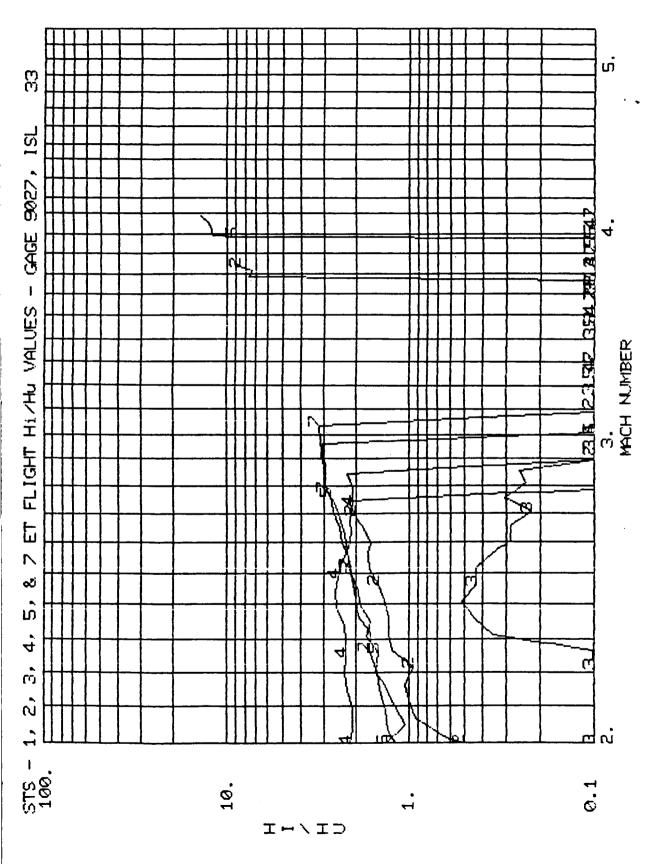


Fig. B.22 Flight-derived h<sub>i</sub>/h<sub>u</sub> vs. M<sub>m</sub> for Gage 9027

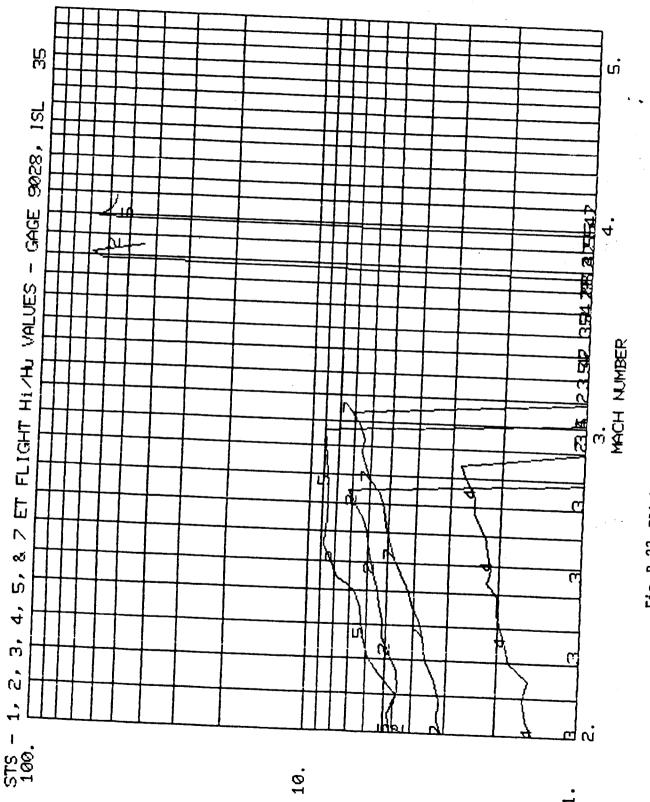


Fig. B.23 Flight-derived h<sub>i</sub>/h<sub>u</sub> vs. M<sub>m</sub> for Gage 9028

H / H J 6.

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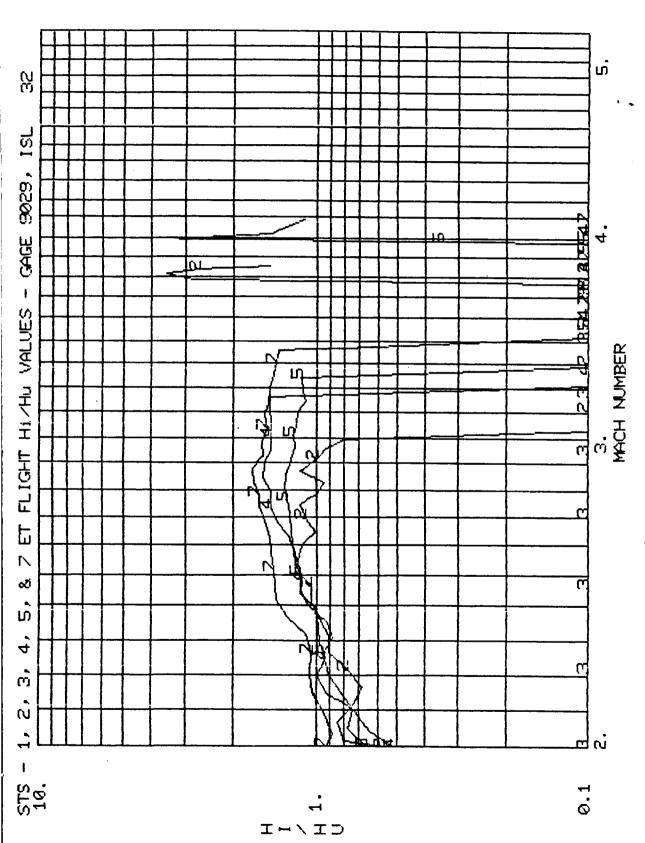


Fig. B.24 Flight-derived h<sub>i</sub>/h<sub>u</sub> vs. M<sub>m</sub> for Gage 9029

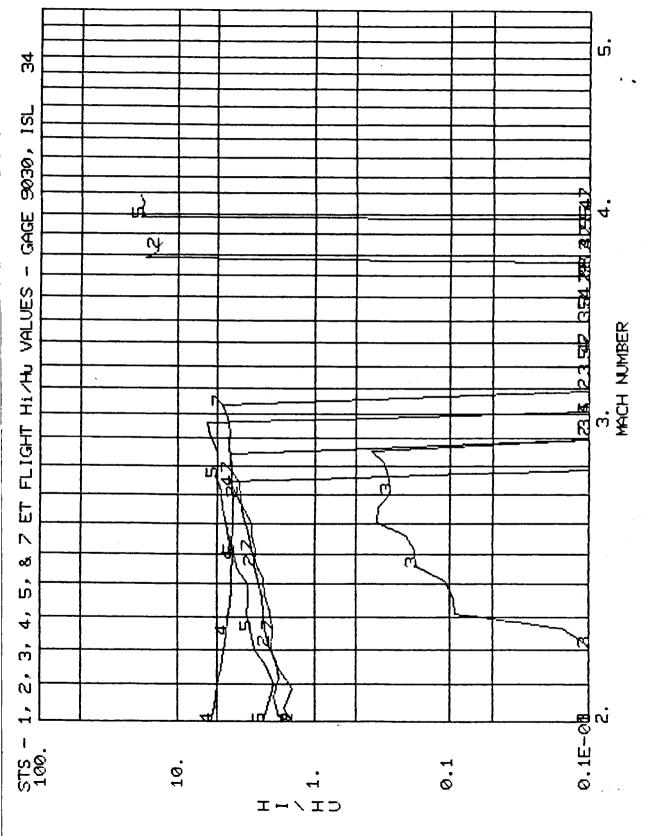


Fig. B.25 Flight-derived h<sub>i</sub>/h<sub>u</sub> vs. M<sub>m</sub> for Gage 9030

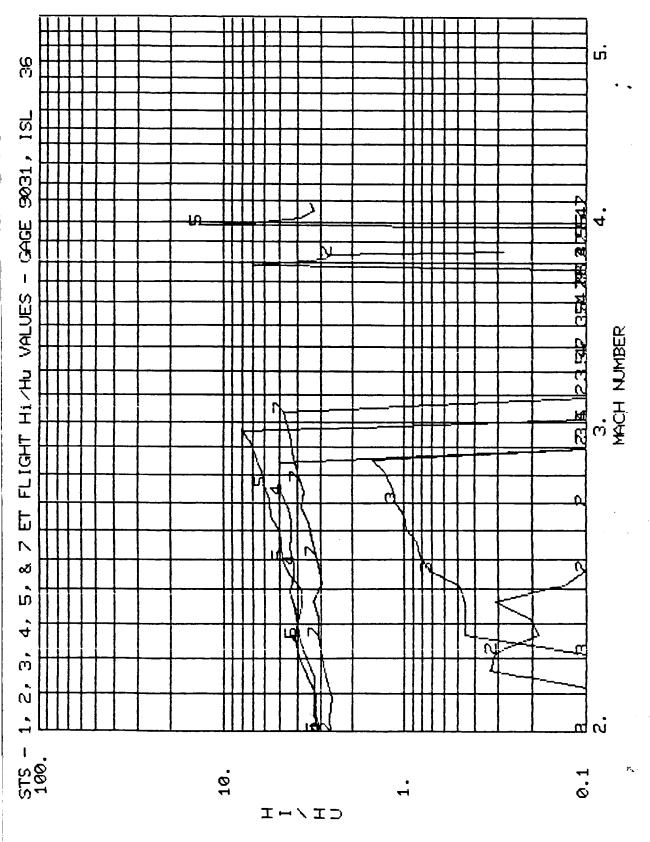


Fig. B.26 Flight-derived h<sub>i</sub>/h<sub>u</sub> vs. M<sub>m</sub> for Gage 9031

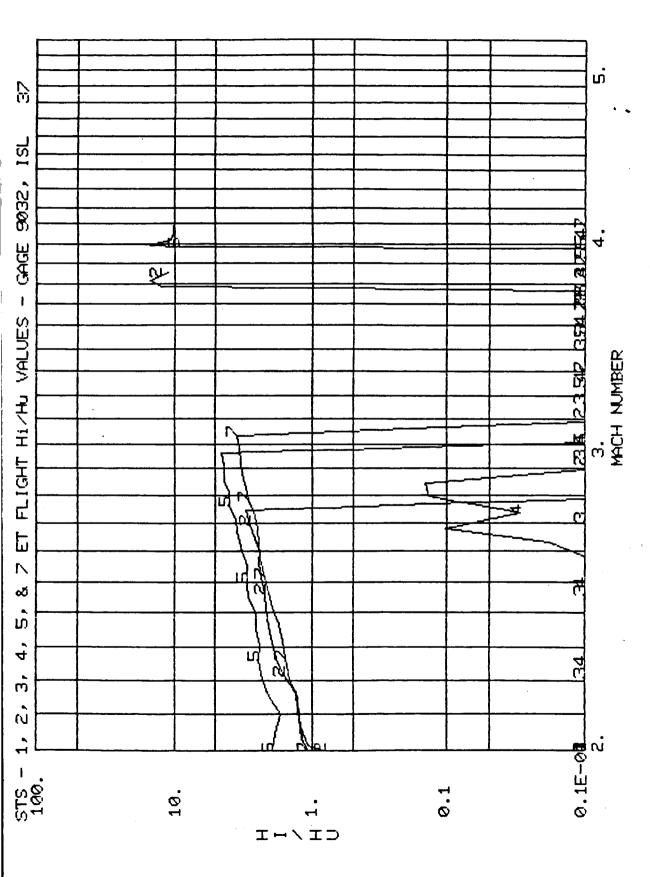


Fig. B.27 Flight-derived h<sub>i</sub>/h<sub>u</sub> vs. M<sub>m</sub> for Gaqe 9032

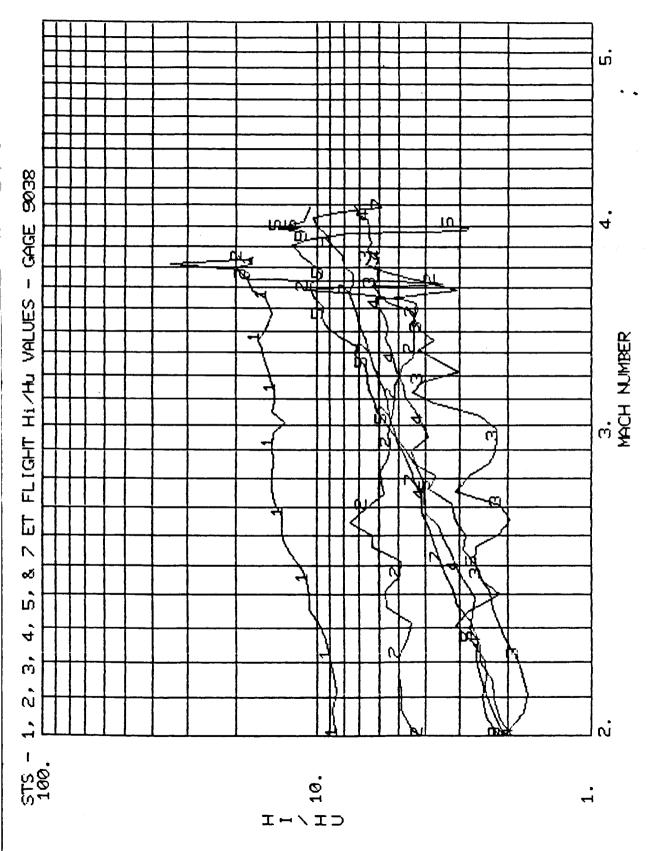


Fig. B.28 Flight-derived h<sub>i</sub>/h<sub>u</sub> vs. M<sub>m</sub> for Gage 9038

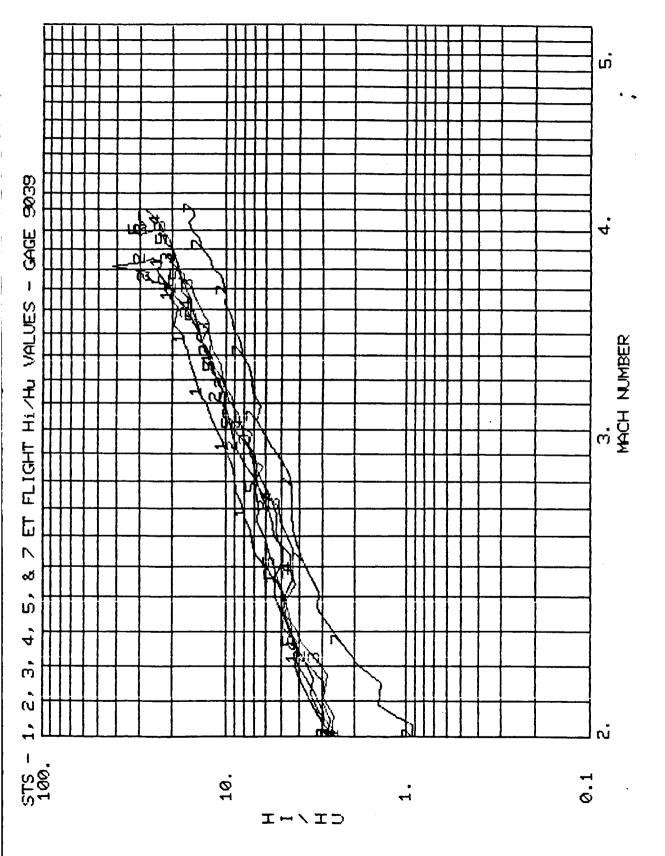


Fig. B.29 Flight-derived h<sub>i</sub>/h<sub>u</sub> vs. M<sub>m</sub> for Gage 9039

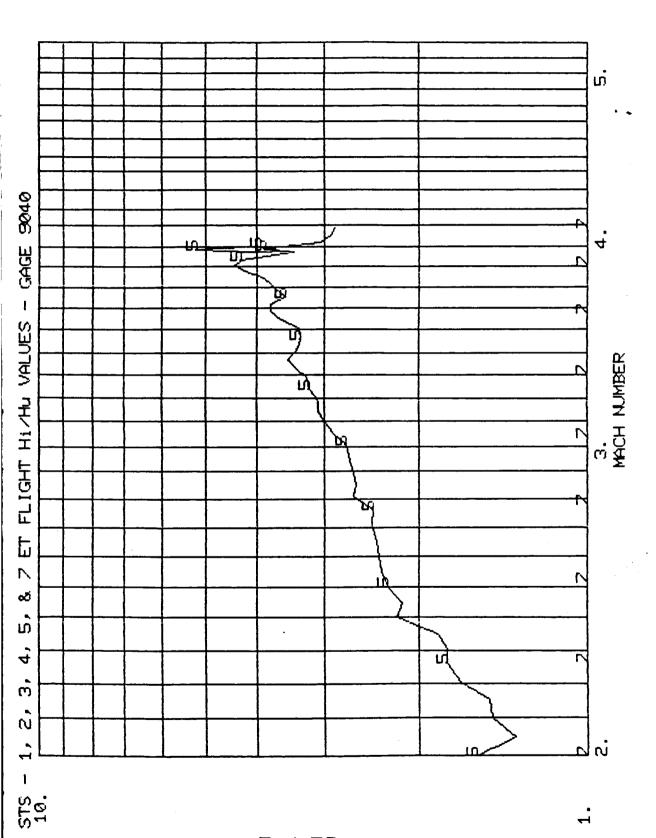


Fig. B.30 Flight-derived h<sub>i</sub>/h<sub>u</sub> vs. M<sub>~</sub> for Gage 9040

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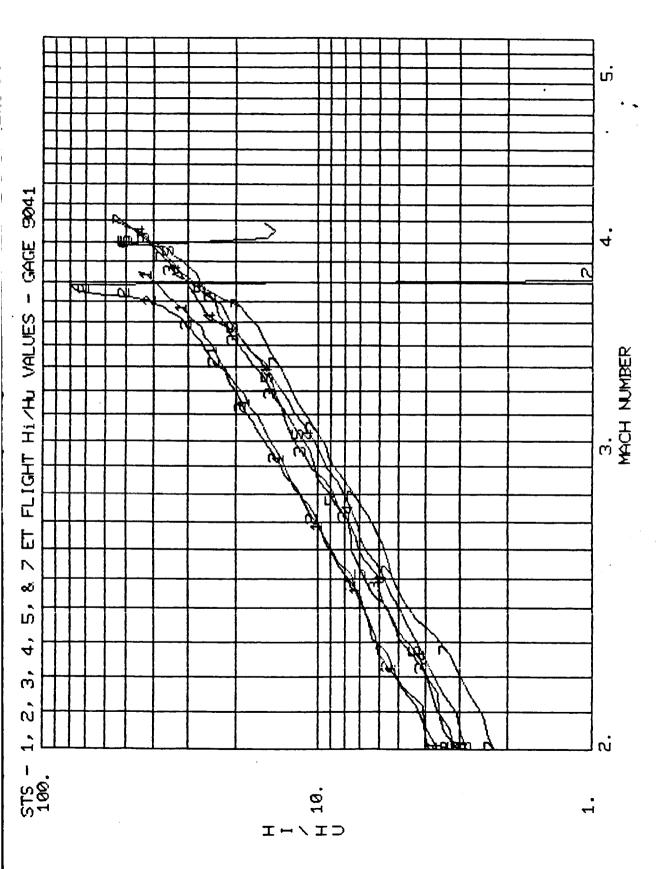


Fig. B.31 Flight-derived  $h_i/h_u$  vs.  $M_{\infty}$  for Gage 9041

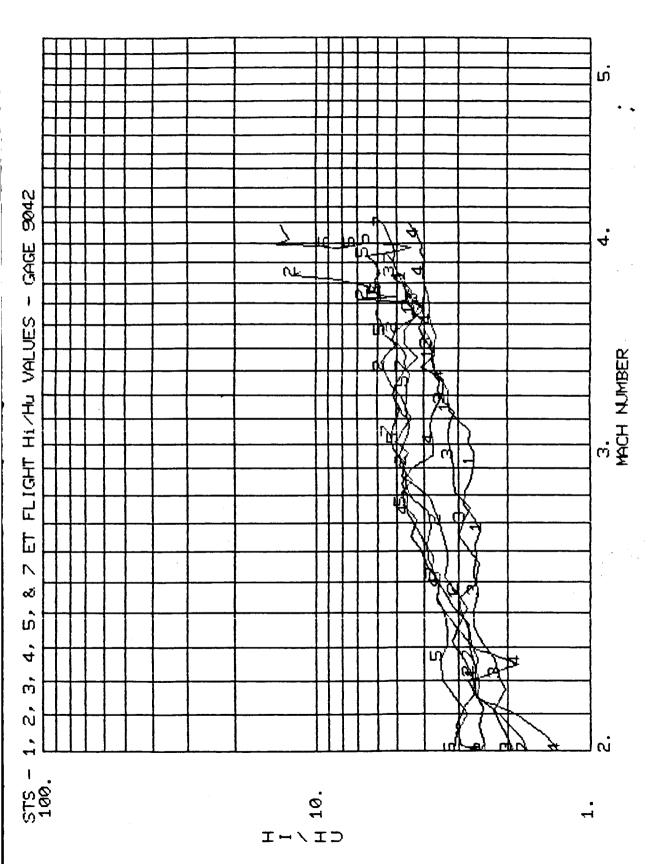


Fig. B.32 Flight-derived hi/hu vs. M. for Gage 9042

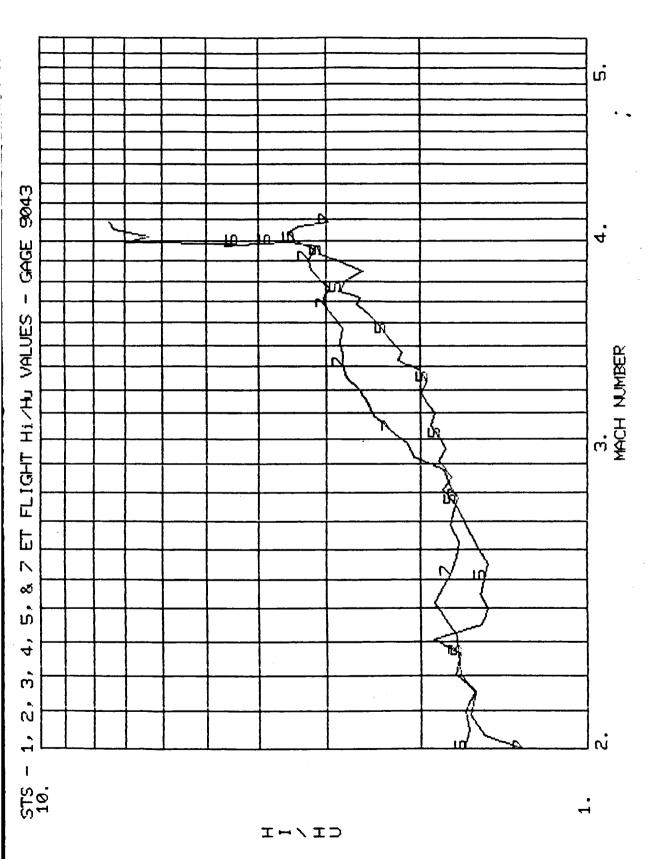


Fig. B.33 Flight-derived h<sub>i</sub>/h<sub>u</sub> vs. M<sub>m</sub> for Gage 9043

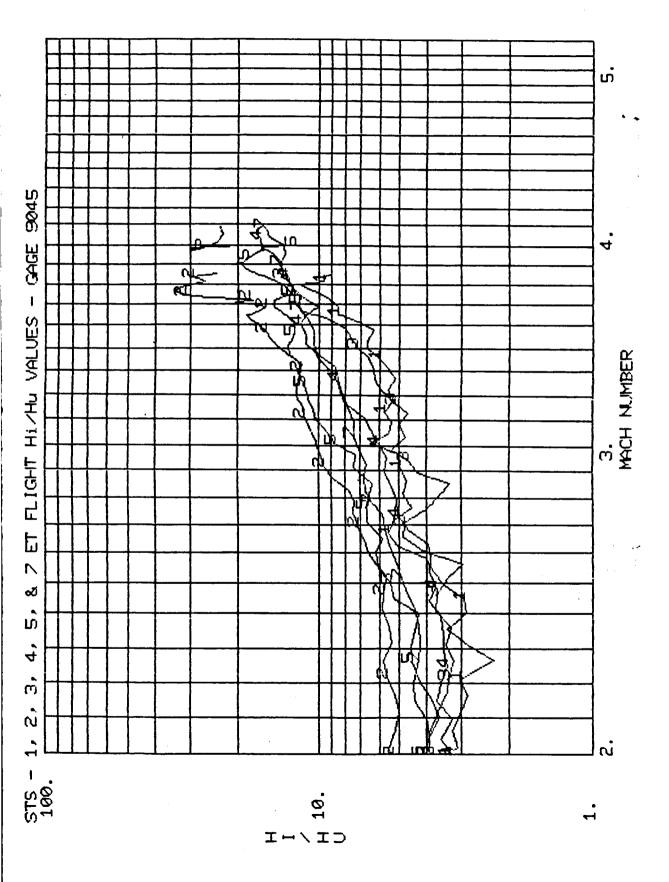


Fig. B.34 Flight-derived h<sub>i</sub>/h<sub>u</sub> vs. M<sub>m</sub> for Gage 9045

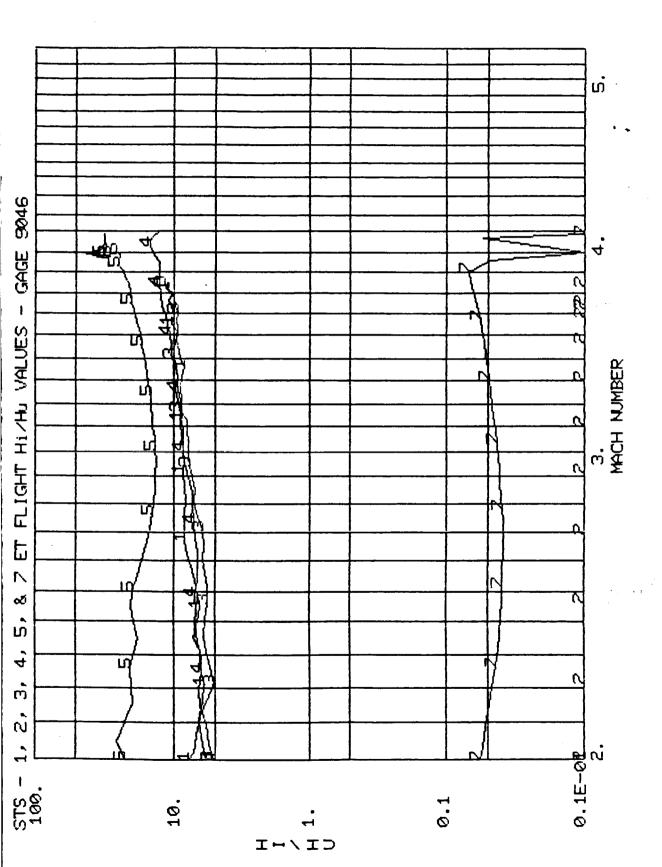


Fig. B.35 Flight-derived h<sub>i</sub>/h<sub>u</sub> vs. M<sub>m</sub> for Gage 9046

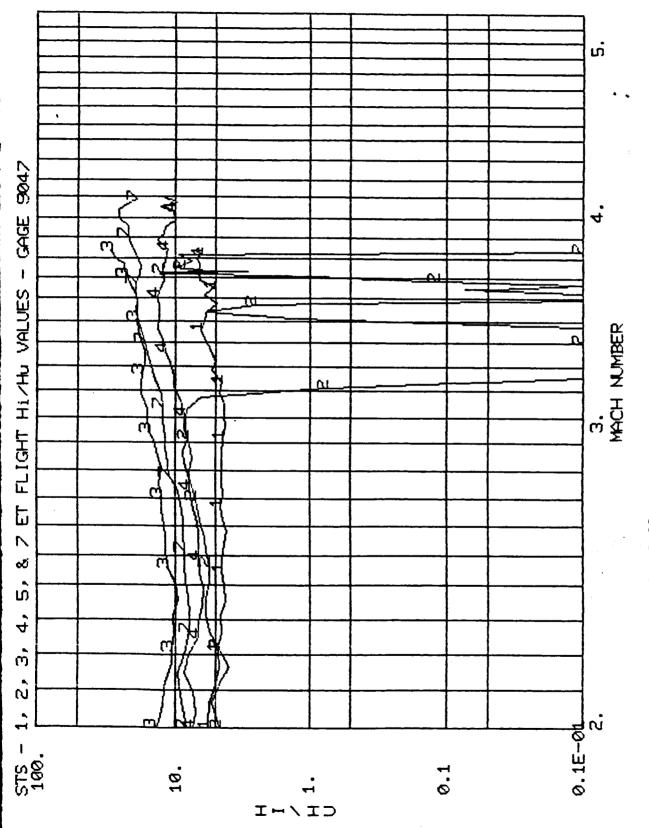


Fig. B.36 Flight-derived h<sub>i</sub>/h<sub>u</sub> vs. M<sub>m</sub> for Gage 9047